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THOMAS FIGES,

WORKS

OF

WILLIAM CULLEN, M.D.

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THE

WORKS

OF

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PROFESSOR OF THE PRACTICE OF PHYSIC IN THE UNIVERSITY OF EDINBURGH.

CONTAINING HIS

PHYSIOLOGY, NOSOLOGY, AND
FIRST LINES OF THE PRACTICE OF PHYSIC:

WITH NUMEROUS EXTRACTS FROM HIS MANUSCRIPT PAPERS,
AND FROM HIS TREATISE OF THE MATERIA MEDICA.

EDITED BY

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FIRST LINES

OF THE

PRACTICE OF PHYSIC.

PART I.

BOOK II.—INFLAMMATIONS, OR PHLEGMASIÆ.

CHAP. I.—OF INFLAMMATION IN GENERAL.

SECT. I.—OF THE PHENOMENA OF INFLAMMATION.

CCXXXV. WHEN any part upon the surface of the body is affected with unusual redness, heat, pain, and tumour, we name the disease an Inflammation or Phlegmasia. These symptoms of inflammation are never considerable, without the whole system being, at the same time, affected with pyrexia.

CCXXXVI. As the external, so likewise the internal parts may be affected with inflammation; and we judge them to be so, when, together with pyrexia, there is a fixed pain in any internal part, attended with some interruption in the exercise of its functions.

CCXXXVII. We judge of the presence of inflammation also from the state of the blood drawn out of the veins. When the blood, after cooling and concreting, shows a portion of the gluten separated from the rest of the mass, and lying on the surface of the crassamentum, as such separation happens in all cases of more evident phlegmasia, so in ambiguous cases, we, from this appearance, joined with other symptoms, infer the presence of inflammation. At the same time, it must be observed, that as several circumstances in blood-letting may prevent this separation of gluten from taking place in blood otherwise disposed to it, so, from the absence of such appearance, we cannot always conclude against the presence of inflammation.

CCXXXVIII. I cannot easily give any other general history of the phenomena of inflammation than what is contained in the three preceding paragraphs; and the variations which may take place in its circumstances, will occur to be more properly taken notice of under the several heads of the particular genera and species to be hereafter mentioned. I proceed, therefore, to inquire into the proximate cause of inflammation in general.

SECT. II.—OF THE PROXIMATE CAUSE OF INFLAMMATION.

CCXXXIX. The phenomena of inflammation (CCXXXV.) all concur in showing, that there is an increased impetus of the blood in the vessels of the part affected; and as, at the same time, the action of the heart is not always evidently increased, there is reason to presume, that the increased impetus of the blood in the particular part, is owing especially to the increased action of the vessels of that part itself.

"An increased impetus in the vessels of the part will most simply and obviously account for the circumstances of inflammation, viz. the increased redness, the increased heat, the tension, and the pain.

"The increased redness has been variously explained. We set out with this, that the redness of a part depends on the colour of the globules of the blood, which are red; the increased redness of a particular part may therefore be explained by these red globules passing into vessels that did not easily carry them; and a number of such vessels exists in every part of the surface of the body, where, accordingly, the increase of redness may be ascribed to this, that the number of vessels which receive these red globules is now greater than formerly. But Dr. Haller and some others are extremely averse to admit of this *error loci*, and maintain that the matter may be explained, by the vessels which carry red globules only receiving them in greater quantity, whereby these vessels are distended, occupy a greater part, and present the whole visible surface of a red colour. The explanation of this will be rendered more easy, by taking notice that the coats of the vessels are white, and always prevent the red colour appearing so fully as it otherwise would do; and, on examining with the microscope, we find that those which appear white, always contain some red globules, and differ from the larger vessels only in as far as these contain a greater quantity, whereby a redness is produced. It makes little difference which of these accounts we please to adopt; because the increased quantity, as well as the *error loci*, necessarily implies the increased action in these vessels.

"We are not much concerned here with a particular theory of the increased heat of the part: whether it be owing to the friction of the red globules of the blood upon the vessels, or on one another, or to the particular oscillation of the blood by the nervous fibres of the system. I am not attached to either of these suppositions; it is enough for us to know that the increased motion of the blood is accompanied with an increase of heat; although I will not say that it is absolutely so, that there may not occur heat without an increase of motion. But the other happens very universally; and where it is conjoined with the other circumstances, we have no doubt that the increased heat is an evidence of the increased impetus of the blood in these vessels.

"The same reasoning will apply to the pain and tension: we can see no other power applied to produce the tension but increased impetus. I have not here specified the mode of the pain which occurs; that, you will find, serves as a distinction for the species of inflammation; but, in general, pain is more frequently owing to over-distention than to almost any other cause in our system (*Physiology*, p. 55.); and as it accompanies tension in this case, it is readily accounted for by the increased impetus.

"I believe there does not now remain, with any physicians, the least doubt, that the whole of these symptoms do infer and prove the existence of increased impetus of the blood, as the principal circumstance in inflammation."

CCXL. The cause of this increased action in the vessels of a particular part, is, therefore, what we are to inquire after, and to consider as the proximate cause of inflammation.

In many cases, we can manifestly perceive that inflammation arises from the application of stimulant substances to the part. When the application of such stimulants, therefore, is evident, we seek for no other cause of inflammation; but as, in many cases, such application is neither evident, nor, with any probability, to be supposed, we must, in such cases, seek for some other cause of the increased impetus of the blood in the vessels of the part.

CCXLI. Many physicians have supposed, that an obstruction of the extreme vessels, any how produced, may prove a cause of inflammation; and, particularly, that this may arise from an obstruction formed by a matter stopping up these vessels. But many difficulties attend this doctrine.

1. The opinion seems chiefly to have arisen from the appearance of the blood described in CCXXXVII., when the separated gluten was considered as a preternatural and morbid matter: but we now know very certainly, that this gluten is constantly a constituent part of the human blood; and that it is only a peculiar separation of the parts of the blood, that happens in consequence of inflammation and some other circumstances, which gives occasion to the appearance that was falsely considered as a mark of the morbid lentor in the blood.

2. There are no experiments directly in proof of a preternatural lentor prevailing in the mass of blood; nor is there any evidence of certain parts of the blood occasionally acquiring a greater density and force of cohesion than ordinary; neither is there any proof of the denser, or more coherent parts, being present in the mass of blood in such greater proportion than usual, as to occasion a dangerous spissitude. The experiments

of Dr. Browne Langrish on this subject, afford no conclusion, having been made on certain parts of the blood, separated from the rest, without attending to the circumstances of blood-letting, which very much alter the state of separation and concretion of the blood drawn out of the veins.

3. The supposition of a preternatural lentor or viscidity of the blood is not well founded; for it is probable, that nature has specially provided against a state of the fluids, so incompatible with the exercise of the most important functions of the animal economy. While motion continues to prevent any separation of parts, and heat continues to preserve the fluidity of the more viscid, there seems to be always so large a proportion of water present, as to give a sufficient fluidity to the whole. I must own, that this is not absolutely conclusive; but I still repeat it, as giving a probability to the general argument.

4. In the particular case of inflammation, there are several circumstances which render it probable, that the blood is then more fluid than usual.

5. I presume that no such general lentor, as Boerhaave and his disciples have supposed, does ever take place; because, if it did, it must shew more considerable effects than commonly appear.

6. Besides the supposition of an obstructing lentor, physicians have supposed, that an obstruction may be formed by an impermeable matter of another kind, and that such an obstruction may also be the cause of inflammation. This supposition is what is well known in the schools under the title of an *error loci;* but it is an opinion that I cannot find to be at all probable: for the motion of the blood in the extreme vessels is so weak and slow as readily to admit a retrograde course of it; and, therefore, if a particle of blood should happen to enter a vessel whose branches will not allow of its passage, it will be moved backwards, till it meet with a vessel fit for transmitting it; and the frequent ramifications and anastomoses of the extreme arteries are very favourable to this. I must own, indeed, that this argument is not absolutely conclusive; because I allow it to be pretty certain, that an *error loci* does actually upon occasion happen: but, for the reasons I have given, it is probable that it seldom happens, and is therefore rarely the cause

of inflammation; or, if it be, that it is not merely by the obstruction that it produces; as, among other reasons, I conclude particularly from the following argument.

7. Though an obstruction should be supposed to take place, it will not be sufficient for producing the effects, and exhibiting the phenomena that appear in inflammation. The theory that has been commonly employed on this occasion is by no means satisfying; and, in fact, it appears from many observations and experiments, that considerable obstructions may be formed and may subsist, without producing the symptoms of inflammation.

CCXLII. Obstruction, therefore, from a matter stopping up the vessels (*Gaub. Pathol.* 284. 285.), is not to be considered as the primary cause of inflammation; but, at the same time, it is sufficiently probable, that some degree of obstruction does take place in every case of inflammation. The distention, pain, redness, and tumor, attending inflammation, are to be explained only by supposing that the extremities of the arteries do not readily transmit the usual quantity of blood impelled into them by the increased action in the course of these vessels. Such an obstruction may be supposed to happen in every case of an increased impetus of the blood; but it is probable, that, in the case of inflammation, there is also a preternatural resistance to the free passage of the fluids.—" If obstruction occurs, it is not as obstruction, or from intercepting the passage of such a quantity of blood, that it has its effects; but it is attended with some degree of tension, which necessarily proves a stimulus to the neighbouring vessels, and at length to the whole system."

CCXLIII. From the doctrine of fever, we are led to believe, that an increased action of the heart and arteries is not supported, for any length of time, by any other means than a spasm affecting the extreme vessels; and that the same spasm takes place in inflammation seems likely, because that every considerable inflammation is introduced by a cold stage, and is accompanied with that and other circumstances of pyrexia. It seems also probable, that something analogous to this occurs even in the case of those inflammations which appear less considerable, and to be purely topical.

CCXLIV. From all this, the nature of inflammation may, in many cases, be explained in the following manner. Some causes of inequality in the distribution of the blood may throw an unusual quantity of it upon particular vessels, to which it must necessarily prove a stimulus. But, further, it is probable, that to relieve the congestion, the *vis medicatrix naturæ* increases still more the action of these vessels; and which, as in all other febrile diseases, it effects by the formation of a spasm on their extremities.

CCXLV. A spasm of the extreme arteries, supporting an increased action in the course of them, may therefore be considered as the proximate cause of inflammation; at least in all cases not arising from direct stimuli applied; and even in this case the stimuli may be supposed to produce a spasm of the extreme vessels.

CCXLVI. That, in inflammation, there is the concurrence of a constriction of the extreme vessels, with an increased action in the other parts of them, seems probable, from the consideration of rheumatism. This is a species of inflammation which is often manifestly produced, either by cold applied to over-distended vessels, or by causes of an increased impetus, and over-distention in vessels previously constricted. Hence the disease especially appears at seasons liable to frequent and considerable vicissitudes of heat and cold.

To this we may add, that the parts of the body most frequently affected with inflammation, are those exposed both to over-distention, from a change in the distribution of the fluids, and, at the same time, to the immediate action of cold. Hence quinsies and pneumonic inflammations are more frequent than any others.

CCXLVII. That the spasm of the extreme vessels takes place in inflammation, is to be further presumed from what is at the same time the state of the whole arterial system. In every considerable inflammation, though arising in one part only, an affection is communicated to the whole system, in consequence of which an inflammation is readily produced in other parts besides that first affected. This general affection is well known among physicians, under the name of the Diathesis Phlogistica. It appears most commonly in persons of the most rigid fibres—is often manifestly induced by the tonic or astringent powers of cold—is increased by all tonic and stimulant powers applied to the body—is always attended with a hardness of the pulse—and is most effectually taken off by the relaxing power of blood-letting. From these circumstances, it seems probable, that the diathesis phlogistica consists in an increased tone, or contractility, and perhaps in an increased contraction of the muscular fibres of the whole arterial system. Such a state of the system seems often to arise, and subsist for some time, without the apparent inflammation of any particlar part; but such a state of the system renders it likely that a spasm may, at the same time, readily arise in any of the extreme vessels, and a particular inflammation be there produced. It does, however, appear also that the general diathesis frequently arises from inflammation begun in a particular part.

"Phlegmasiæ and fevers essentially differ in this, that the one is necessarily, and the other only accidentally and more rarely accompanied with the phlogistic diathesis in the whole system: further, that in the phlegmasiæ it is not preceded by the symptoms of debility as in fevers, nor is it ever accompanied with the tendency to putrefaction so common in fevers; it is more pure and simple, and does not, as far as we can perceive, depend upon any foreign matter introduced, nor does it afford any contagion. From the general character of the year or season, these diseases may be supposed to be epidemic, but they are never contagious, and for the most part may be considered as constantly sporadic."

CCXLVIII. I have thus endeavoured, in the case of inflammation, to explain the state of the whole system as well as that of the part more particularly affected. The latter I have considered as when in its first formation; but after it has subsisted for some time, various changes take place in the part affected; and of these I must now take notice.

SECT. III.—OF THE TERMINATIONS OF INFLAMMATION.

CCXLIX. If an inflammation be cured while the state and texture of the part remain entire, the disease is said to be terminated by RESOLUTION.

This happens when the previous congestion and spasm have been in a moderate degree, and the increased impetus of he blood has been sufficient to overcome the spasm, to dilate the vessels, and to remove the congestion, so that the part is restored to its ordinary and healthy state.

A resolution takes place also, when the increased impetus of the fluids has produced an increased exhalation into the adjoining cellular texture, or an increased excretion in some neighbouring part, and has thereby relaxed the spasm, and relieved the congestion in the vessels of the part more particularly affected.

Lastly, a resolution may take place, when the increased impetus of the blood in the whole system occasions an evacuation, which, though in a distant part, may prove sufficient to take off the phlogistic diathesis of the whole system, and thereby relieve the congestion and spasm of the particular part affected by inflammation.

CCL. The tumour which appears in inflammation may be imputed in part to the congestion of fluids in their proper vessels; but is owing chiefly to an effusion of matter into the adjoining cellular texture; and accordingly tumours seldom appear but in parts adjoining to a lax cellular texture. If, in this case, the matter effused be only a larger quantity of the ordinary exhaling fluid, this, when the free circulation in the vessels is restored, will be readily absorbed, and the state of the part will become the same as before. But if the increased impetus of the blood in an inflamed part, dilate the exhalent vessels to such a degree, that they pour out an entire serum, this will not be so readily reabsorbed: and from the experiments of Sir John Pringle, and especially from those of Mr. Gaber, *Miscell. Taurin.* vol. ii. we learn, that the serum, under stagnation, may suffer a particular change, by having the gluten present in it changed into a white, opaque, moderately viscid, mild liquor, which we name PUS. When this change takes place in the inflamed part, as it is at the same time attended with an abatement of the redness, heat, and pain, which before distinguished the inflammation, so the disease is said to be terminated by SUPPURATION; and an inflamed part, containing a collection of pus, is called an ABSCESS.

CCLI. In inflammation, the tendency of it to suppuration may be discovered, by the long continuance of the inflammation, without the symptoms of resolution; by some remission of the pain of distention; by the pain becoming of a throbbing kind, more distinctly connected with the pulsation of the arteries; by the pulse of the arteries being fuller and softer; and often by the patient's being frequently affected with cold shiverings. The period at which this takes place is not determined, but may be sometimes sooner, sometimes later. When the tendency is determined, the time necessary to a complete suppuration is different in different cases.

When pus is completely formed, the pain in the part entirely ceases, and a weight is felt in it. If the collection be formed immediately under the skin, the tumour becomes pointed, the part becomes soft, and the fluctuation of the fluid within can commonly be perceived; while, at the same time, for the most part, the redness of the skin formerly prevailing is very much gone.

CCLII. In abscesses, while the pus is formed of one part of the matter which had been effused, the other and thinner parts are re-absorbed, so that, in the abscess, when opened, a pus alone appears. This pus, however, is not the converted gluten alone; for the conversion of this being the effect of a particular fermentation, which may affect the solid substance of the part, and perhaps every solid of animal bodies; so it most readily and particularly affects the cellular texture, eroding much of it, which thereby becomes a part of the pus. It generally happens also, that some of the smaller red vessels are eroded, and thereby some red blood often appears mixed with the pus in abscesses. Upon the whole, the internal surface of an abscess is to be considered as an ulcerated part.

CCLIII. This account of suppuration explains why an abscess, when formed, may either spread into the cellular texture of the neighbouring parts, or, by eroding the incumbent teguments, be poured out upon the surface of the body, and produce an open ulcer.

CCLIV. We have here given the idea of an abscess as a collection of matter following inflammation; but the term has been applied to every collection of matter effused, and changed by stagnation in an enclosed cavity.

The matter of abscesses, and of the ulcers following them, is various, according to the nature of what is effused, and which may be,

1. A matter thinner than serum.
2. An entire and pure serum.
3. A quantity of red globules.
4. A matter furnished by particular glands seated in the part.
5. A mixture of matters from different sources, changed by peculiar fermentation.

It is the second only which affords a proper pus; the effusion whereof, whether in suppurating parts or ulcers, seems to be the peculiar effect of an inflammatory state of the vessels; and for this reason it is, that, when ulcers do not produce a proper pus, a circumstance always absolutely necessary to their healing, we, in many cases, bring the ulcers to a state of proper suppuration, by the application of stimulants exciting inflammation, such as balsams, mercury, copper, &c.

" With regard to pus appearing especially in wounds, there is one question which is at least of some curiosity. Why is it that the generation of pus is seemingly of some necessity? for very often it attends the generation of new flesh in wounds. I own that this is a problem of considerable difficulty, and necessarily involved in the whole mystery of nutrition; and therefore a solution of it cannot well be expected. I can see some foundation for an approach to this solution, in so far as the extension of the parts is necessary to their growth, and to the accretion of new matter; the inflammation supervening in wounds may be necessary to the extension; and the suppuration may serve the purpose of covering and defending the new accretion."

CCLV. When the matter effused into the cellular texture of an inflamed part is tainted with a putrid ferment, this produces, in the effused matter, a state approaching more or less to that of putrefaction. When this is in a moderate degree, and affects only the fluids effused with the substance of the cellular texture, the part is said to be affected with GANGRENE; but if the putrefaction affect also the vessels and muscles of the part, the disease is said to be a SPHACELUS.

CCLVI. A gangrene, and its consequences, may arise from a putrid ferment diffused in the mass of blood, and poured out with the serum effused, which it operates upon more powerfully while the serum is stagnant and retained in the heat of the body: but it may also arise from the peculiar nature of the matter effused being disposed to putrefaction; as particularly seems to be the case of the red globules of the blood effused in a large quantity. In a third manner also, a gangrene seems frequently to arise from the violent excitement of the inflammation destroying the tone of the vessels; whereby the whole fluids stagnate and run into putrefaction, which, taking place in any degree, destroys still further the tone of the vessels, and spreads the gangrene.

CCLVII. In inflammation, the tendency to gangrene may be apprehended from an extreme violence of pain and heat in the inflamed part, and from a great degree of pyrexia attending the inflammation.

The actual coming on of gangrene may be perceived, by the colour of the inflamed part changing from a clear to a dark red; by blisters arising upon the part; by the part becoming soft, flaccid, and insensible; and by the ceasing of all pain while these appearances take place.

As the gangrene proceeds, the colour of the part becomes livid, and, by degrees, quite black; the heat of the part entirely ceases; the softness and flaccidity of the part increase; it loses its consistence, exhales a cadaverous smell, and may then be considered as affected with sphacelus.

CCLVIII. Gangrene is thus a *third* manner in which inflammation terminates; and the schools have commonly marked a *fourth* termination of inflammation, which is by a scirrhus, or an indolent hardness of the part formerly affected with inflammation. This, however, is a rare occurrence, and does not seem to depend so much upon the nature of inflammation, as upon the circumstances of the part affected. It is in glandular parts chiefly that scirrhosity is observed; and it is probably owing to the parts readily admitting a stagnation of the fluids. I have observed, that inflammation seldom induces scirrhus; but that this more commonly arises from other causes; and when inflammation supervenes, which it is sooner or later apt to do, it does not so commonly increase as change the scirrhosity into some kind of abscess. From these considerations, it does not seem necessary to take any further notice of scirrhus as a termination of inflammation.

"It does not appear in any case evident that scirrhus, as affecting the glandular parts, is to be considered as the natural or common consequence of inflammation; and I observed that it frequently arises without any inflammation preceding or accompanying it, and that, therefore, certainly scirrhosity has its separate cause; and when, in consequence of inflammation, a glandular part is affected with scirrhus, it may be doubtful whether or not the separate cause of scirrhus took place at the same time; and the scirrhus was not so much the consequence of inflammation, as that the inflammation happened to excite the operation of those causes which produced the scirrhus."

CCLIX. There are, however, some other terminations of inflammation not commonly taken notice of, but now to be mentioned.

One is, by the effusion of a portion of the entire mass of blood, either by means of rupture or of anastomosis, into the adjoining cellular texture. This happens especially in inflammations of the lungs, where the effused matter, by compressing the vessels and stopping the circulation, occasions a fatal suffocation; and this is perhaps the manner in which pneumonic inflammation most commonly proves fatal.

CCLX. Another kind of termination, is that of certain inflammations on the surface of the body, when there is poured out under the cuticle a fluid, which being too gross to pass through its pores, therefore separates it from the skin, and raises it up into the form of a vesicle containing the effused fluid; and by which effusion the previous inflammation is taken off.

CCLXI. Besides these already mentioned, I believe there is still another manner in which inflammation terminates. When the internal parts are affected with inflammation, there seems to have been almost always upon their surface an exudation, which appears partly as a viscid concretion upon their surface, and partly as a thin serous fluid effused into the cavities in which the inflamed viscera are placed. Though we have become acquainted with these appearances only, as very constantly accompanying those inflammations which have proved fatal, it is however probable, that like circumstances may have attended those which were terminated by resolution, and may have contributed to that event. It is in favour of this supposition that there are instances of pneumonic inflammation terminating in a hydrothorax.

SECT. IV.—OF THE REMOTE CAUSES OF INFLAMMATION.

CCLXII. The remote causes of inflammation may be reduced to five heads.

1. The application of stimulant substances; among which are to be reckoned the action of fire, or burning.
2. External violence operating mechanically in wounding, bruising, compressing, or overstretching the parts.
3. Extraneous substances lodged in any part of the body, irritating by their chemical acrimony or mechanical form, or compressing by their bulk or gravity.
4. Cold, in a certain degree, not sufficient immediately to produce gangrene.—" How this may precisely operate, I will not pretend to say; I think difficulties attend every theory which has been proposed; I here consider the fact. As heat has its limits, so here the intensity of the cold is to be regarded. To what degree below the freezing point it may go, I would not decide; but somewhat below the freezing point is the common cause of chilblains. Every more intense degree of cold, that does not immediately produce gangrene, stupifying the part and stopping all motion of the fluids, operates by producing an inflammation, which is sometimes recoverable, but sometimes followed by the gangrenous state."
5. An increased impetus of the blood determined to a particular part.

It will not be difficult to understand how these remote causes, singly, or in concurrence, produce the proximate cause of inflammation.

CCLXIII. It does not appear that, in different cases of inflammation, there is any difference in the state of the proximate cause, except in the degree of it; and, though some difference of inflammation may arise from the difference of the remote causes, yet this is not necessary to be taken notice of here; because the different appearances which attend different inflammations may be referred, for the most part, to the difference of the part affected, as will appear when we shall consider the several genera and species marked in the Nosology. When I come to treat of these, I shall find a more proper occasion for taking notice of the different states of the proximate, or of the differences of the remote cause, than by treating of them in general here.

SECT. V.—OF THE CURE OF INFLAMMATION.

CCLXIV. The indications of cure in inflammation are different, according as it may still be capable of resolution, or may have taken a tendency to the several other terminations above mentioned. As the tendency to these terminations is not always immediately evident, it is always proper, upon the first appearance of inflammation, to attempt the cure of it by resolution. For this purpose, the indications of cure are,

1. To remove the remote causes when they are evident and continue to operate.
2. To take off the phlogistic diathesis affecting either the whole system or the particular part.
3. To take off the spasm of the particular part, by remedies applied either to the whole system or to the part itself.

CCLXV. The means of removing the remote causes will readily occur, from considering the particular nature and circumstances of the different kinds. Acrid matters must be removed, or their action must be prevented, by the application of correctors or demulcents. Compressing and overstretching powers must be taken away; and, from their several circumstances, the means of doing so will be obvious.

CCLXVI. The means of taking off the phlogistic diathesis of the system, are the same with those for moderating the violence of reaction in fever, which are mentioned and treated of from CXXVII to CXLIX., and therefore need not be repeated here. I only observe, that, in the use of those remedies, there is less occasion for any reserve than in many cases of fever; and, more particularly, that topical bleedings are here particularly indicated and proper.

"The *first* means of taking off the increased impetus is the antiphlogistic regimen, that is, the avoiding every irritation which subsists, or can occasionally arise in the system; and here we may employ this regimen in its full extent.

"The *second* means to be employed is venesection. This is known indeed to be the universal, and by much the most powerful remedy in diminishing all inflammation. With regard to its general operation, I have said enough on the subject of fever (CXXXVIII—CXLIV.), except one particular, which was reserved for this place, viz. the consideration of the quantity which it is proper or allowable to draw. Being the most powerful and effectual remedy, bleeding is very liable to be pushed to excess: it has been the practice to repeat it so long as any symptoms of inflammation have continued; but undoubtedly this useful operation has its limits; and a certain quantity drawn from the veins may even prove mortal. It is true, that this is a very unusual occurrence, because long before such a quantity is drawn, a *deliquium animi* will usually intervene and prevent further effusion; but the repetition may produce a fatal effect; and though it do not kill, it has other effects which at length prove fatal to the system, and it is otherwise attended with many inconveniences. I do not think that this matter has been properly viewed, and the bad effects of excessive venesection have not been duly attended to. I shall endeavour to explain this in a few words: It is a difficult problem to explain in what manner the fluids of animals are retained in their bodies, when we consider how many thousand outlets are constantly open and ready to let them pass. Some of our circulating fluids we can certainly no more confine in any great quantity, than we can water in a sieve. They must certainly be retained, because the outlets or openings, however numerous, are not of sufficient size to allow every portion of the fluids to pass. Thus, the red globules of the blood, and probably other portions of our fluids, and particularly of the coagulable lymph, are of such a size as not to be fit to pass through the various excretories; but these parts are not only retained themselves, but by their viscidity retain a very considerable portion of the thinner and more watery fluids, the effect of which is to moderate the secretions and excretions, and to prevent even a considerable part of our thinner fluids from running off. But when blood is drawn from the vessels, a greater portion of the more solid parts is taken away, the remaining portion will be of too great a tenuity, and the whole will readily run off by the exhalants into the cellular texture, and therefore produce anasarca, which, as every body knows, is produced by excessive hæmorrhagies and artificial bleeding. Moreover, the renewal of the nutritious parts will always depend upon a certain degree of vigour in the assimilating organs or in the various organs of digestion, which, by evacuations of blood, may be so weakened as not to be left in a condition to renew the necessary parts of the blood. The tenuity of the blood has sometimes been considered as the consequence of inflammation, when it was only the consequence of excessive evacuations.

" But there are other consequences from the debility which excessive bleeding may induce; one particularly in the case of pleurisy and peripneumony, those instances of inflammation in which we are most liable to push bleeding to excess. In peripneumony there is certainly one effusion of a catarrhal kind which may be supposed to arise from the mucous glands of the bronchia alone; but there is reason to believe, that besides that, a quantity of serous fluid is copiously poured out into the bronchia, increasing the expectoration; now large bleeding has a tendency to increase this last effusion; and if, at the same time, the system is weakened, so as to prevent an equal expectoration, or ejection of these fluids, the patients may in consequence be suffocated. We find several instances of this in the writings of Morgagni.

" In the case of rheumatism large bleedings leave the system more liable to be affected by such causes as may renew the disease. Cold affects us in proportion to our debility; and there are many cases, where, by excessive bleeding, a rheumatism has been changed into an obstinate chronic form, in which it has remained for life.

" I must say, therefore, that there are certainly limits to the use of bleeding in inflammatory cases, but I find it difficult to decide how these limits are to be measured. (See CXLII.)

" Another means of evacuation is purging; this I also considered under the head of fevers (CXLIV.—CXLIX.); and I concluded that it is not of the same efficacy in diminishing the impetus of the blood in general as bleeding is, and that in many cases it may be inconvenient; thus, in rheumatism affecting a number of joints, the frequent rising to go to stool may do more harm by the irritation than the evacuation can do service. The chief conclusion of this, however, is, that purging will very rarely or never supersede bleeding, but for the most part bleeding will supersede the trouble of the other evacuation; and purging therefore is not frequently to be employed further than as a part of the antiphlogistic regimen, and to keep open the belly, which is useful in all feverish or inflammatory states. There is perhaps an exception however in the cases where purging may not only act by the quantity evacuated, but by revulsion: it is therefore supposed to be of more use in ophthalmia and phrenitis."

CCLXVII. The means of taking off the spasm of the particular part are nearly the same as those mentioned above, for taking off the spasm of the extreme vessels in the case of fever, and which are treated of from CL. to CC. Only it is observed here, that some of these are here especially indicated, and that some of them are to be directed more particularly to the part especially affected, the management of which will be more properly considered when we shall treat of particular inflammations.

" Blisters often have a considerable effect in resolving the inflammation; and the only explanation of the effect of these remarkably stimulant applications, is either that they take off the spasm of the part affected, by relaxing the neighbouring parts, or that, by the afflux to the neighbouring parts, they relieve those which are immediately connected with them. It is now well known, accordingly, that this blistering is an important remedy, but that it is especially applicable to inflammations which are purely topical, and fixed to one place to which we can approach with our blisters, as in the case of phrenitis, angina, and pleurisy, particularly ileus; but if an inflammatory diathesis prevails in the whole system, and is not fixed to any particular part, as in the case of rheumatism, the early application of blisters is seldom of any durable effect with respect to the whole system, and of very little with respect to the particular part.

“ With regard to internal antispasmodics, I know of none used in inflammation. Our physicians have agreed upon this practice as of no efficacy. If any were to be used internally, probably opium would be the chief.”

The use of opium in inflammatory diseases has been declared hurtful by the practitioners of almost all ages. The reason of it is obvious: if inflammatory diseases consist in an increased action of the heart and arteries, with a phlogistic diathesis which causes and supports this increased action, it is highly probable that every stimulus applied to the system must do the same, and thereby aggravate the disease: but opium, on many occasions, as we have said already, is a stimulant power; and whoever denies this, as some, in writing, have done, appears to deny and misrepresent facts admitted by every body else. For my part, I conclude, with the utmost confidence, that opium in general, is hurtful in all inflammatory diseases, and disposed to increase the phlogistic diathesis of the system; and as all practitioners are agreed that blood-letting affords the most effectual means for the cure of that diathesis, so we are persuaded of the propriety of Dr. Young’s general rule, that opium is improper in all those cases in which blood-letting is necessary. But I must allow that there may be exceptions, or circumstances in certain inflammatory diseases, that may admit, or perhaps require the use of opium. Such are those cases in which the inflammatory state arises from irritation in a particular part producing spasm, and supervening inflammation. —*M. M.*

“ We have now learned, I think, to cure rheumatism by the use of opium in the Dover’s Powder, as I shall have occasion to point out more fully hereafter.

“ Here I had chiefly in view certain antispasmodics which are applied externally.

“ In all external inflammations, except in those of the erysipelatous kind, bathing and fomentations have been frequently applied: they may be, I think, of water alone, but that has seldom been the case; the water has been commonly impregnated with a variety of medicines under the title of Refrigerants and Discutients. But from all the observations which I have been able to make, I believe the effects of water alone to be as considerable as those of any impregnation whatever. The presumption is, that these remedies operate entirely by relaxing the part as far as the application can reach; but much more considerable is the relaxation of the innumerable extremities of the nerves under the cuticle in consequence of the warmth and moisture applied; their relaxation may be communicated to the neighbouring parts, but I have no faith in the absorption of the vapour.

" Camphor, which has been very commonly employed in external inflammations, is most certainly possessed of sedative power, and from its remarkable volatility, may be supposed to penetrate the parts to a considerable degree; but its application to the extremities of the nerves may be supposed to account for some of its effects in that way. I would not, therefore, refuse the virtues of camphor on this occasion; but from want, either of opportunity or of a proper administration, or from some other circumstance, I have seldom found any remarkable resolvent effects from camphor, applied directly to phlegmonic or erysipelatous inflammations. But a strong application of camphor will certainly very often take off rheumatic, and even arthritic pains.

" Emetics are inserted here on no very clear ground. Their operation in fevers in determining to the surface I have rendered sufficiently probable, but how this will apply to cases of topical affection is not very evident; and I cannot say that they can have any direct operation upon the proper inflammation, even supposing that to depend upon a spasm. But in order to explain their effects, we must consider that most inflammations are attended by a fever, which, though symptomatic, depends on some degree of febrile spasm affecting the whole body; and certainly emetics may, in some measure, resolve that general febrile spasm, and therefore may be of considerable use even in the cases of pure phlegmasiæ. Accordingly, I have set them down here as a means of taking off the obstruction and spasm in the case of inflammation."

CCLXVIII. When a tendency to suppuration (CCLI.) is distinctly perceived, as we suppose it to depend upon the effusion of a fluid which cannot be easily reabsorbed, so it becomes necessary that this fluid be converted into pus, as the only natural means of obtaining its evacuation: and as the effusion is, perhaps, seldom made without some rupture of the vessels, to the healing of which a pus is absolutely necessary; so, in the case of a tendency to suppuration, the indication of cure always is, to promote the production of a perfect pus as quickly as possible.

CCLXIX. For this purpose, various remedies supposed to possess a specific power, have been proposed; but I can perceive no such power in any of them; and, in my opinion, all that can be done is, to favour the suppuration by such applications as may support a proper heat in the part, as, by some tenacity, may confine the perspiration of the part, and as, by an emollient quality, may weaken the cohesion of the teguments, and favour their erosion.

CCLXX. As, in the case of certain effusions, a suppuration is not only unavoidable, but desirable, it may be supposed, that most of the means of resolution formerly mentioned should be avoided; and accordingly our practice is commonly so directed. But, as we observe, on the one hand, that a certain degree of increased impetus, or of the original circumstances of inflammation, is requisite to produce a proper suppuration; so it is then especially necessary to avoid those means of resolution that may diminish too much the force of the circulation. And as, on the other hand, the impetus of the blood, when violent, is found to prevent the proper suppuration; so, in such cases, although a tendency to suppuration may have begun, it may be proper to continue those means of resolution which moderate the force of the circulation.

With respect to the opening of abscesses, when completely formed, I refer to the writings on surgery.

CCLXXI. When an inflammation has taken a tendency to gangrene, that event is to be prevented by every possible means;

and these must be different, according to the nature of the several causes occasioning that tendency, as may be understood from what has been already said of them. After a gangrene has, in some degree, taken place, it can be cured only by the separation of the dead from the living parts. This, in certain circumstances, can be performed by the knife, and always most properly, when it can be so done.

In other cases, it can be done by exciting a suppuratory inflammation on the verge of the living part, whereby its cohesion with the dead may be every where broken off, so that the latter may fall off by itself. While this is doing, it is proper to prevent the further putrefaction of the part, and its spreading wider. For this purpose, various antiseptic applications have been proposed: but it appears to me, that, while the teguments are entire, these applications can hardly have any effect; and therefore that the fundamental procedure must be to scarify the part, so as to reach the living substance, and, by the wounds made there, to excite the suppuration required. By the same incisions also, we give access to antiseptics, which may both prevent the progress of the putrefaction in the dead, and excite the inflammation necessary on the verge of the living part.

CCLXXII. When the gangrene proceeds from a loss of tone; and when this, communicated to the neighbouring parts, prevents that inflammation which, as I have said, is necessary to the separation of the dead part from the living; it will be proper to obviate this loss of tone by tonic medicines given internally; and, for this purpose, the Peruvian bark has been found to be especially effectual. That this medicine operates by a tonic power, I have endeavoured to prove above (CCXIV.); and, from what is said in CCXV., the limitations to be observed in employing it may also be learned. When the gangrene arises from the violence of inflammation, the bark may not only fail of proving a remedy, but may do harm: and its power as a tonic is especially suited to those cases of gangrene which proceed from an original loss of tone, as in the case of palsy and œdema; or to those cases of inflammation where a loss of tone takes place, while the original inflammatory symptoms are removed.

CCLXXIII. The other terminations of inflammation either do not admit of any treatment, except that of preventing them by the means of resolution, or, they belong to a treatise of surgery rather than to this place.

Having thus, therefore, delivered the general doctrine, I proceed now to consider the particular genera and species of inflammation.

It has been hinted above (CCLXIII.), that the difference of inflammations arises chiefly from the difference of the part affected: I have therefore arranged them, as they are CUTANEOUS, VISCERAL, or ARTICULAR; and in this order they are now to be considered.

"I have enumerated the genera without setting down any marks of distinction, but I will give you what I would attempt upon the subject. I first consider Phlegmasiæ as affecting several external parts, and accordingly begin with Phlogosis and Ophthalmia; after these, a series of inflammations taken as they occur *a capite ad calcem*, but which I would limit more exactly to the inflammation of parts contained in one of the great cavities of the body; the third division consists of phlegmasiæ which are somewhat ambiguous, viz. Rheumatism and Arthritis, and which form our last genera."

CHAP. II.—OF INFLAMMATION, MORE STRICTLY CUTANEOUS.

CCLXXIV. Cutaneous inflammations are of two kinds, commonly distinguished by the names of PHLEGMON and ERYSIPELAS.

Of the latter there are two cases, which ought to be distinguished by different appellations. When the disease is an affection of the skin alone, and very little of the whole system, or when the affection of the system is only symptomatical of the external inflammation, I shall give the disease the name of ERYTHEMA; but when the external inflammation is an exanthema, and symptomatical of an affection of the whole system, I shall then name the disease ERYSIPELAS.

CCLXXV. It is the Erythema only that I am to consider here.

For the distinction between Erythema and Phlegmon, I have formerly referred to the characters given of them in our Nosology. (See *Synops. Nosolog. Meth.* gen. vii. sp. 1. and 2. p. 260.) But I think it proper now to deliver the characters of them more fully and exactly here, as follows:

A Phlegmon is an inflammatory affection of the skin, with a swelling, rising generally to a more considerable eminence in the middle of it, of a bright red colour, both the swelling and colour being pretty exactly circumscribed; the whole being attended with a pain of distention, often of a stounding or throbbing kind, and frequently ending in suppuration.

An Erythema, Rose, or St. Anthony's Fire, is an inflammatory affection of the skin, with hardly any evident swelling; of a mixed, and not very bright red colour, readily disappearing upon pressure, but quickly returning again; the redness of no regular circumscription, but spreading unequally, and continuing almost constantly to spread upon the neighbouring part; with a pain like to that from burning; producing blisters, sometimes of a small, sometimes of a larger size; and always ending in a desquamation of the scarf-skin, sometimes in gangrene.

This subject I am not to prosecute here, as properly belonging to surgery, the business of which I am seldom to enter upon in this work; and I shall therefore observe only as necessary here, that the difference of these appearances seems to depend on the different seat of the inflammation. In the phlegmon, the inflammation seems to affect especially the vessels on the internal surface of the skin communicating with the lax subjacent cellular texture; whence a more copious effusion, and that of serum convertible into pus, takes place. In the erythema, the inflammation seems to have its seat in the vessels on the external surface of the skin, communicating with the rete mucosum, which does not admit of any effusion, but what separates the cuticle, and gives occasion to the formation of a blister, while the smaller size of the vessels admits only of the effusion of a thin fluid, very seldom convertible into pus.

Besides these differences in the circumstances of these two kinds of inflammation, it is probable that they also differ with respect to their causes. Erythema is the effect of all kinds of acrids externally applied to the skin; and, when arising from an internal cause, it is from an acrimony poured out on the surface of the skin under the cuticle. In the phlegmon, an acrimony is not commonly evident.

"What is the peculiar circumstance which causes phlegmon and determines it to the interior surface of the skin and the cellular membrane subjected to it, is difficult to explain, especially when we consider that it occupies only a small portion of that membrane, that it is fixed to one place, and the tumour circumscribed; but when we recollect its remote causes, extraneous bodies and various modes of external violence, we can easily see how they will rather produce phlegmon than erythema."

CCLXXVI. These differences in the seat and causes of the phlegmon and erythema being admitted, it will be evident that, when an erythema affects any internal part, it can take place in those only whose surfaces are covered with an epithelion, or membrane analogous to the cuticle.

CCLXXVII. The same distinction between the seat and causes of the two diseases will, as I judge, readily explain what has been delivered by practical writers, with respect to the cure of these different cutaneous inflammations. But I shall not, however, prosecute this here, for the reason given above (CCLXXV.); and, for the same reason, shall not say any thing of the variety of external inflammation that might otherwise be considered here.

CHAP. III.—OF OPHTHALMIA, OR INFLAMMATION OF THE EYE.

CCLXXVIII. The inflammation of the eye may be considered as of two kinds; according as it has its seat in the membranes of the ball of the eye, when I would name it OPHTHALMIA MEMBRANARUM; or, as it has its seat in the sebaceous glands placed in the tarsus or edges of the eye-lids, in which case it may be termed OPHTHALMIA TARSI.

These two kinds are very frequently combined together, as the one may readily excite the other; but they are still to be distinguished, according as the one or the other may happen to be the primary affection, and properly, as they often arise from different causes.

CCLXXIX. The inflammation of the membranes of the eye affects especially, and most frequently, the adnata, appearing in a turgescence of its vessels; so that the red vessels which are naturally there, become not only increased in size, but there appear many more than did in a natural state. This turgescence of the vessels is attended with pain, especially upon the motion of the ball of the eye; and this, like every other irritation applied to the surface of the eye, produces an effusion of tears from the lachrymal gland.

This inflammation commonly, and chiefly, affects the adnata spread on the anterior part of the bulb of the eye; but usually spreads also along the continuation of that membrane on the inside of the palpebrae; and, as that is extended on the tarsus palpebrarum, the excretories of the sebaceous glands opening there are also frequently affected. When the affection of the adnata is considerable, it is frequently communicated to the subjacent membranes of the eye, and even to the retina itself, which thereby acquires so great a sensibility, that the slightest impression of light becomes painful.

CCLXXX. The inflammation of the membranes of the eye is in different degrees, according as the adnata is more or less affected, or according as the inflammation is either of the adnata alone, or of the subjacent membranes also; and, upon these differences, different species have been established, and different appellations given to them. But I shall not, however, prosecute the consideration of these, being of opinion that all the cases of the Ophthalmia membranarum differ only in degree, and are to be cured by remedies of the same kind, more or less employed.

The remote causes of Ophthalmia are many and various; as,

1. External violence, by blows, contusions, and wounds, applied to the eyes; and even very slight impulses applied, while the eye-lids are open, to the ball of the eye itself, are sometimes sufficient for the purpose.

2. Extraneous bodies introduced under the eye-lids, either of an acrid quality, as smoke and other acrid vapours, or of a bulk sufficient to impede the free motion of the eye-lids, upon the surface of the eye-ball.

3. The application of strong light, or even of a moderate light long continued.

4. The application of much heat, and particularly of that with moisture.

5. Much exercise of the eyes in viewing minute objects.

6. Frequent intoxication.

7. Irritation from other and various diseases of the eyes.

8. An acrimony prevailing in the mass of blood, and deposited in the sebaceous glands on the edges of the eye-lids.

9. A change in the distribution of the blood, whereby either a more than usual quantity of blood, and with more than usual force is impelled into the vessels of the head, or whereby the free return of the venous blood from the vessels of the head is interrupted.

10. A certain consent of the eyes with the other parts of the system, whereby, from a certain state of these parts, either a simultaneous, or an alternating affection of the eyes, is produced.

CCLXXXI. The proximate cause of Ophthalmia is not different from that of inflammation in general; and the different circumstances of Ophthalmia may be explained by the difference of its remote causes, and by the different parts of the eye which it happens to affect. This may be understood from what has been already said; and I shall now therefore proceed to consider the Cure.

CCLXXXII. In the cure of Ophthalmia, the first attention will be always due to the removing of the remote causes, and the various means necessary for this purpose will be directed by the consideration of these causes enumerated above.

The Ophthalmia membranarum requires the remedies proper for inflammation in general; and, when the deeper seated membranes are affected, and especially when a pyrexia is present, large general bleedings may be necessary. But this is seldom the case; as the Ophthalmia, for the most part, is an affection purely local, accompanied with little or no pyrexia. General bleedings, therefore, from the arm or foot, have little effect upon it; and the cure is chiefly to be obtained by topical bleedings, that is, blood drawn from vessels near the inflamed part; and opening the jugular vein, or the temporal artery, may be considered as in some measure of this kind. It is commonly sufficient to apply a number of leeches round the eye; and it is perhaps better still to draw blood from the temples, by cupping and scarifying. In many cases, a very effectual remedy is that of scarifying the internal surface of the inferior eye-lid; and more so still, is cutting the turgid vessels upon the adnata itself.

CCLXXXIII. Besides blood-letting, purging, as a remedy suited to inflammation in general, has been considered as peculiarly adapted to inflammations in any of the parts of the head, and therefore to Ophthalmia; and it is sometimes useful: but, for the reasons given before with respect to general bleeding, purging in the case of Ophthalmia does not prove useful in any degree in proportion to the evacuation excited.

"Some have had a particular opinion of the use of mercurial purgatives upon this occasion. I do not imagine that when mercurials are employed along with purgatives, and so carried off by stool, they can have any effect upon the system; and therefore if calomel, joined to the other purgatives, has been thought of particular use here, it is only as it does sharpen and unite with the other purgatives."

CCLXXXIV. For relaxing the spasm in the part, and taking off the determination of the fluids to it, blistering near the part has commonly been found useful.

CCLXXXV. Electrical sparks taken from the eye will often suddenly discuss the inflammation of the adnata; but the effect is seldom permanent, and even a frequent repetition seldom gives an entire cure.

CCLXXXVI. Ophthalmia, as an external inflammation, admits of topical applications. All those, however, that increase the heat, and relax the vessels of the part, prove commonly hurtful; and the admission of cool air to the eye, the proper application of cold water immediately to the ball of the eye, and the application of various cooling and astringent medicines, which at the same time do not produce much irritation, prove generally useful; even spiritous liquors, employed in moderate quantity, have often been of service.

"Alum is useful in curing the Ophthalmia membranarum, and seems to be more powerful for this purpose than either white vitriol or sugar of lead. It is commonly employed in the form of the coagulum aluminosum, but I have found the solution in water to be still more effectual, employing from two to five grains of alum to the ounce of water.

The astringent powers of the preparations of copper have especially appeared in the application of them to the eyes, and we have known a weak solution of verdegris useful in restraining inflammation; but it is so ready to prove irritating to that sensible organ, that a great deal of nicety is necessary in the employment of it; and we seem to have a milder preparation in the aqua sapphirina.

It has been commonly supposed that the aqua sapphirina was suited to take off specks or opaque spots that appear upon the cornea, and which has been supposed to imply an escharotic power; but this certainly is seldom the case, and it seems to act only by an astringent power, diminishing the impetus of the fluids in the vessels which terminate in the opaque spot.—*M.M.*

CCLXXXVII. In the cure of Ophthalmia, much care is requisite to avoid all irritation, particularly that of light; and the only safe and certain means of doing this is by confining the patient to a very dark chamber.

"It is obvious that light cannot be admitted without occasioning more or less motion in every part of the eye; it not only necessarily occasions the different motions of the iris, and those of the palpebræ constantly corresponding to them, but we know that no part of the human body moves so frequently as the eye; it requires an effort to keep it fixed but for a moment, and it is impossible to suppose any illapse of light, that does not occasion a constant motion of the whole eye, and therefore affect every part in which an inflammation may be seated.

"But light also operates in another manner. If the sensibility of the retina is any how increased, then light is a very strong irritation, and we may suppose this to be the case in the deep seated inflammations of the retina or choroidea. This internal inflammation is of more rare occurrence; but even a slight inflammation of the adnata, though not sufficient to communicate an inflammatory state to the internal membranes, can give such a tension to their vessels, as will greatly increase their sensibility, so that the slightest irritation of light will be extremely hurtful.

I have therefore given the advice, that the first and fundamental remedy, in all kinds of ophthalmia, is the avoiding all exercise of the eye, and therefore all application or admission of light.

"I am disposed to believe that the obstinacy of many cases of ophthalmia is merely owing to the admission of light. For, though every body avoids the direct light of the fire or sun, yet patients do the matter only by halves; and although they slouch the hat, hang before the eye a bit of green silk, &c. they still look upon objects which are strongly illuminated. The same may be said of a skreen between the patient and the fire, and of candle skreens; they are very imperfect means of avoiding the light. Another way is to tie up the affected eye, but neither is this sufficient, as the motions of the two eyes are necessarily connected together, so that the covered eye constantly follows the other, and is affected so far as motion can operate. Shutting up the eye also accumulates the perspiration and confines the heat, which is considerably increased. There is therefore no effectual means of avoiding the irritation of light and the motion of the eye, but putting the person into a dark chamber; and I am certain of the good effects of this in many cases."

CCLXXXVIII. These are the remedies of the Ophthalmia membranarum; and, in the Ophthalmia tarsi, so far as it is produced by the Ophthalmia membranarum, the same remedies may be necessary. As, however, the Ophthalmia tarsi may often depend upon an acrimony deposited in the sebaceous glands of the part, so it may require various internal remedies according to the nature of the acrimony in fault; for which I must refer to the consideration of scrofula, syphilis, or other diseases with which this ophthalmia may be connected; and, when the nature of the acrimony is not ascertained, certain remedies, more generally adapted to the evacuation of acrimony, such, for instance, as mercury, may be employed.

CCLXXXIX. In the Ophthalmia tarsi, it almost constantly happens that some ulcerations are formed on the tarsus. These require the application of mercury or copper, either of which may by itself sometimes entirely cure the affection; and these may even be useful when the disease depends upon a fault of the whole system.

CCXC. Both in the Ophthalmia membranarum, and in the Ophthalmia tarsi, it is necessary to obviate that gluing or sticking together of the eye-lids which commonly happens in sleep; and this may be done by insinuating a little of any mild unctuous medicine, of some tenacity, between the eye-lids before the patient shall go to sleep.

CHAP. IV.—OF PHRENSY, OR PHRENITIS.

CCXCI. This disease is an inflammation of the parts contained in the cavity of the cranium; and may affect either the membranes of the brain, or the substance of the brain itself. Nosologists have apprehended that these two cases might be distinguished by different symptoms, and therefore by different appellations: but this does not seem to be confirmed by observation and dissection; and therefore I shall treat of both cases under the title of Phrensy or Phrenitis.

"Sauvages and Linnæus have believed that there was that difference, and have accordingly made two genera, Cephalitis and Sphacelismus. The difficulty arises from hence, that the symptoms are in some measure directly opposite. In both cases there is more or less delirium; but in the inflammation of the substance of the brain, instead of the delirium audax, it is the delirium somnolentum, and instead of the 'vis artuum major,' it is 'cum asthenia.' The difficulty goes still farther: there is a phrenitis altogether without fever; the brain has been found inflamed to a considerable degree so as to form abscesses, while the symptoms appeared only a little before death: therefore the symptoms of such affections of the brain are not yet sufficiently and precisely enough marked, and we must leave this to further inquiry."

CCXCII. An idiopathic phrensy is a rare occurrence, a sympathic more frequent; and the ascertaining either the one or the other is, upon many occasions, difficult. Many of the symptoms by which the disease is most commonly judged to be present have appeared, when, from certain considerations, it was presumed, and even from dissection it appeared, that there had been no internal inflammation; and, on the other hand, dissections have shown, that the brain had been inflamed, when few of the peculiar symptoms of phrensy had before appeared.

CCXCIII. The symptoms by which this disease may be most certainly known, are, a vehement pyrexia, a violent deep-seated headach, a redness and turgescence of the face and eyes, an impatience of light and noise, a constant watching, and a delirium impetuous and furious. Some nosologists have thought these symptoms peculiar to an inflammation of the membranes, and that the inflammation of the substance of the brain was to be distinguished by some degree of coma attending it. It was for this reason that, in the Nosology, I added the Typhomania to the character of Phrenitis; but, upon farther reflection, I find no proper foundation for this; and, if we pass from the characters above delivered, there will be no means of fixing the variety that occurs.

I am here, as in other analogous cases, of opinion that the symptoms above mentioned of an acute inflammation always mark inflammations of membranous parts; and that an inflammation of the parenchyma, or substance of viscera, exhibits, at least commonly, a more chronic affection.

CCXCIV. The remote causes of phrensy are all those which directly stimulate the membranes or substance of the brain; and particularly all those which increase the impetus of the blood in the vessels of the brain. Among these, the exposure of the naked head to the direct rays of a very warm sun, is a frequent cause. The passions of the mind, and certain poisons, are amongst the remote causes of phrensy; but in what manner they operate is not well understood.

CCXCV. The cure of phrensy is the same with that of inflammation in general; but in phrensy, the most powerful remedies are to be immediately employed. Large and repeated blood-letting is especially necessary; and the blood should be drawn from vessels as near as possible to the part affected. The opening of the temporal artery has been recommended, and with some reason; but the practice is attended with inconvenience; and I apprehend that opening the jugular veins may prove more effectual; but, at the same time, it will be generally proper to draw blood from the temples by cupping and scarifying.

CCXCVI. It is probable that purging, as it may operate by revulsion, may be of more use in this than in some other inflammatory affections.

For the same purpose of revulsion, warm pediluvia are a remedy; but, at the same time, somewhat ambiguous. The taking off the force of the blood in the vessels of the head by an erect posture, is generally useful.

CCXCVII. Shaving of the head is always proper and necessary for the admission of other remedies. Blistering is commonly useful in this disease, but chiefly when applied near to the part affected.

CCXCVIII. Every part of the antiphlogistic regimen is here necessary, and particularly the admission of cold air. Even cold substances, applied close to the head, have been found safe, and highly useful; and the application of such refrigerants as vinegar is certainly proper.

CCXCIX. It appears to me certain, that opiates are hurtful in every inflammatory state of the brain; and it is to be observed, that, from the ambiguity mentioned in CCXCII., the accounts of practitioners, with regard to the juvantia and lædentia in this disease, are of very uncertain application.

"Tying a person down in the horizontal posture is very improper; and I have seen, when it has been done, that, on the patient being set on his feet, the redness of the face and eyes went off, and even the delirium was relieved."

CHAP. V.—OF THE QUINSY, OR CYNANCHE.

CCC. This name is applied to every inflammation of the internal fauces; but these inflammations are different, according to the part of the fauces which may be affected, and according to the nature of the inflammation. In the Nosology, therefore, after giving the character of the Cynanche as a genus, I have distinguished five different species, which must here likewise be separately considered.

"There is no doubt that there are different species of Cynanche: the general character, therefore, comes to be of much less importance. In this genus I have not adopted the species of Sauvages, but have attempted myself to give the specific characters, and I have given a full and particular definition of each.

"The different species were formerly not known by physicians. Dr. Boerhaave, for instance, had no idea of the Angina maligna, the gangrenous sore throat, although the disease had existed one hundred and fifty years before his time: he would not have been in this condition if some person like Sauvages had at that time gathered the hints of different authors on the subject. I know very well that when I was in practice about thirty years ago, and the Cynanche maligna first appeared in this country, many practitioners mistook it for the common angina; and since that time the Cynanche tonsillaris has frequently, to the great anxiety of parents, and prejudice of infants, been considered as of the gangrenous kind, and treated as such. Physicians are still disputing whether the Cynanche gangrenosa and stridula (the Croup) are to be distinguished; and one of the latest writers on the subject has not done it. This I think a sufficient proof of the necessity of labouring in this manner in giving accurate characters and definitions. It is absolutely necessary to study nosology; for the knowledge of remedies will be insignificant till we know how to distinguish diseases. I think I am safe when I am protected by the authority of Sydenham, and other practitioners in this, that we do not fail so often from the want of proper remedies as from not exactly knowing the disease. I shall, therefore, think it a principal part to instruct you in the distinguishing diseases; and I think it nowhere more necessary than in the present subject of cynanche, of which the different species have been confounded with one another."

SECT. I.—OF THE CYNANCHE TONSILLARIS.

CCCI. This is an inflammation of the mucous membrane of the fauces, affecting especially that congeries of mucous follicles which forms the tonsils, and spreading from thence along the velum and uvula, so as frequently to affect every part of the mucous membrane.

CCCII. The disease appears by some tumour, sometimes considerable, and by a redness of the parts; is attended with a painful and difficult deglutition; with a pain sometimes shooting into the ear; with a troublesome clamminess of the mouth and throat; with a frequent but difficult excretion of mucus; and the whole is accompanied with a pyrexia.

CCCIII. This species of quinsy is never contagious. It terminates frequently by resolution, sometimes by suppuration, but hardly ever by gangrene; although, in this disease, some sloughy spots, commonly supposed to be forerunners of gangrene, sometimes appear upon the fauces.

CCCIV. This disease is commonly occasioned by cold externally applied, particularly about the neck. It affects especially the young and sanguine, and a disposition to it is often acquired by habit; so that, from every considerable application of cold to any part of the body, this disease is readily induced. It occurs especially in spring and autumn, when vicissitudes of heat and cold often take place. The inflammation and tumour are commonly at first most considerable in one tonsil; and afterwards, abating in that, increase in the other.

" The Cynanche tonsillaris affects especially red-haired people. I have known people who gradually, as they advanced in life, became less subject to this affection; so that from never missing it once a-year, they would not have it for several years. When once the vessels have been distended by an afflux of blood, they are more readily affected afterwards: this is the reason of a disposition for the disease being acquired by habit."

CCCV. In the cure of this inflammation, some bleeding may be proper, but large bleedings will seldom be necessary. The opening of the ranular veins seems to be an insignificant remedy, and leeches set upon the external fauces are of more efficacy.

" This inflammation seldom requires general bleeding, as most of the other internal inflammations do. The only urgent symptom is a considerable swelling, threatening suffocation. It has rarely occurred to me of a dangerous nature, but it may be in some cases considerable, especially where both tonsils are much swelled at once, which is not common. In that case respiration is difficult, but generally there is passage enough to prevent danger. Practical writers, as Dr. Sydenham, have however observed that the disease became suddenly suffocating.

This I think is owing to the circumstance that the affection may be communicated more or less to the glottis, and may there produce the suffocating spasms: I have, however, in more than thirty years' practice, not met with this accident. Where the swelling is considerable, the general bleeding is certainly to be repeated; but our more certain relief is from topical bleeding, from the application of leeches to the external fauces, which seldom fails in relieving at least the great swelling."

CCCVI. At the beginning of the disease, full vomiting has been frequently found to be of great service.

CCCVII. This inflammation may be often relieved by moderate astringents, and particularly by acids applied to the inflamed parts. In many cases, however, nothing has been found to give more relief than the vapour of warm water received into the fauces by a proper apparatus.

In many persons who are liable to be affected with this swelling from slight applications of cold, we have known the disease prevented or soon removed by the use of a decoction of oak-bark, to a pound of which, half a dram of alum and two ounces of brandy were added. Alum is used in gargles in relaxations of the uvula and other swellings of the mucous membrane of the fauces, when there is not at the same time any acute inflammation present; but I have known it employed in every state of Cynanche tonsillaris with some advantage.—*M. M.*

CCCVIII. The other remedies of this disease are rubefacient or blistering medicines, applied externally to the neck; and with these, the employment of antiphlogistic purgatives, as well as every part of the antiphlogistic regimen, excepting the application of cold.

"I am as certain of the hurt from cold in this affection as of the benefit of it in phrenitis; cold drink has aggravated and indeed induced the disease. It was customary to apply poultices to the external fauces, and if rightly applied, they might be of use, but as after they are applied, they generally soon fall down, and are cold when again closely applied, they are therefore improper."

CCCIX. This disease, as we have said, often terminates by resolution, frequently accompanied by sweating, which is therefore to be prudently favoured and encouraged.

CCCX. When this disease shall have taken a tendency to suppuration, nothing will be more useful than the frequent taking into the fauces the steams of warm water. When the abscess is attended with much swelling, if it break not spontaneously, it should be opened by a lancet; and this does not require much caution, as even the inflammatory state may be relieved by some scarification of the tonsils. I have never had occasion to see any case requiring bronchotomy.

SECT. II.—OF THE CYNANCHE MALIGNA.

CCCXI. This is a contagious disease, seldom sporadic, and commonly epidemic. It attacks persons of all ages, but more commonly those in a young and infant state. It attacks persons of every constitution when exposed to the contagion, but most readily the weak and infirm.

CCCXII. The disease is usually attended with a considerable pyrexia; and the symptoms of the accession of this, such as frequent cold shiverings, sickness, anxiety, and vomiting, are often the first appearances of the disease. About the same time, a stiffness is felt in the neck, with some uneasiness in the internal fauces, and some hoarseness of the voice. The internal fauces, when viewed, appear of a deep red colour, with some tumour; but this last is seldom considerable, and deglutition is seldom difficult or painful. Very soon a number of white or ash-coloured spots appear upon the inflamed parts. These spots spread and unite, covering almost the whole fauces with thick sloughs, which falling off, discover ulcerations. While these symptoms proceed in the fauces, they are generally attended with a coryza, which pours out a thin acrid and fetid matter, excoriating the nostrils and lips. There is often also, especially in infants, a frequent purging; and a thin acrid matter flows from the anus, excoriating this and the neighbouring parts.

" When the disease is epidemic, we especially judge of its approach by the vomiting. In Cynanche tonsillaris the affection extends to the adjacent muscles and membranes; in Cynanche maligna it seems more erysipelatous, and does not go so deep. I have seen this disease attended with coma, so that we could not inspect the fauces; but in that case we may know of its presence by the flow from the nose."

CCCXIII. With these symptoms, the pyrexia proceeds with a small, frequent, and irregular pulse; and there occurs a manifest exacerbation every evening, and some remission in the mornings. A great debility appears in the animal functions; and the sensorium is affected with delirium, frequently with coma.

CCCXIV. On the second day, or sometimes later, efflorescences appear upon the skin, which are sometimes in small points hardly eminent, but for the most part in patches of a red colour, spreading and uniting so as to cover the whole skin. They appear first about the face and neck, and in the course of some days spread by degrees to the lower extremities. The scarlet redness is often considerable on the hands and extremities of the fingers, which feel stiff and swelled. This eruption is often irregular as to the time of its appearance, as to its steadiness, and as to the time of its duration. It usually continues four days, and goes off by some desquamation of the cuticle; but neither on its first appearance, nor on its desquamation, does it always produce a remission of the pyrexia, or of the other symptoms.

CCCXV. The progress of the disease depends on the state of the fauces and of the pyrexia. When the ulcers on the fauces, by their livid and black colour, by the fetor of the breath, and by many marks of acrimony in the fluids, show a tendency to gangrene, this takes place to a considerable degree; and, the symptoms of a putrid fever constantly increasing, the patient dies, often on the third day, sometimes later, but for the most part before the seventh. The acrimony poured out from the diseased fauces must necessarily, in part, pass into the pharynx, and there spread the infection into the œsophagus, and sometimes through the whole of the alimentary canal, propagating the putrefaction, and often exhausting the patient by a frequent diarrhœa.

The acrid matter poured out in the fauces being again absorbed, frequently occasions large swellings of the lymphatic glands about the neck, and sometimes to such a degree as to occasion suffocation.

It is seldom that the organs of respiration escape entirely unhurt, and very often the inflammatory affection is communicated to them. From dissections it appears, that, in the Cynanche maligna, the larynx and trachea are often affected in the same manner as in the Cynanche trachealis; and it is probable, that, in consequence of that affection, the Cynanche maligna often proves fatal by such a sudden suffocation as happens in the proper Cynanche trachealis; but there is reason to suspect, that, upon this subject, dissectors have not always distinguished properly between the two diseases.

CCCXVI. These are the several fatal terminations of the Cynanche maligna; but they do not always take place. Sometimes the ulcers of the fauces are of a milder nature; and the fever is more moderate, as well as of a less putrid kind. And when, upon the appearance of the efflorescence on the skin, the fever suffers a remission; when the efflorescence continues for three or four days, till it has spread over the whole body, and then ends by a desquamation, giving a further remission of the fever; this often entirely terminates by gentle sweats, on or before the seventh day; and the rest of the disease terminates in a few days more, by an excretion of sloughs from the fauces; while sleep, appetite, and the other marks of health return.

From what is said in this, and the preceding paragraph, the prognostics in this disease may be readily learned.

CCCXVII. In the cure of this disease, its septic tendency is chiefly to be kept in view. The debility with which it is attended renders all evacuations by bleeding and purging improper, except in a few instances where the debility is less and the inflammatory symptoms more considerable. The fauces are to be preserved from the effects of the acrid matter poured out upon them, and are therefore to be frequently washed out by antiseptic gargles or injections; and the septic tendency of the whole system should be guarded against and corrected by internal antiseptics, especially by the Peruvian bark given in substance from the beginning, and continued through the course of the disease. Emetics, both vomiting and nauseating, prove useful, especially when employed early in the disease. When any considerable tumour occurs, blisters applied externally will be of service, and, in any case, may be fit to moderate the internal inflammation.

"*Injections.*—The mention of injections was only necessary for Scotch physicians, who consider them as a dangerous practice, because they might run into the glottis; but nature has taken ample precautions against this; the glottis shuts on the least drop being injected. This is a common practice in England and France.

"The bark and wine are here used in greater quantity than in any other disease. Sometimes the taste of the bark must be covered from infants, and the Extractum Glycirrhizæ covers it entirely, so that they very generally take it in this manner. Even in very young children we can throw in wine in considerable quantity. I gave to a boy of eight years old an English pint daily, and with much advantage. I am more and more convinced from every day's experience of the use of emetics in this disease, and even in the Cynanche tonsillaris."

SECT. III.—OF THE CYNANCHE TRACHEALIS.

CCCXVIII. This name has been given to an inflammation of the glottis, larynx, or upper part of the trachea, whether it affect, the membranes of these parts or the muscles adjoining. It may arise first in these parts, and continue to subsist in them alone; or it may come to affect these parts from the Cynanche tonsillaris or maligna spreading into them.

CCCXIX. In either way it has been a rare occurrence; and few instances of it have been marked and recorded by physicians. It is to be known by a peculiar ringing sound of the voice, by difficult respiration, with a sense of straitening about the larynx, and by a pyrexia attending it.

CCCXX. From the nature of these symptoms, and from the dissection of the bodies of persons who had died of this disease, there is no doubt of its being of an inflammatory nature. It does not, however, always run the course of inflammatory affections, but frequently produces such an obstruction of the passage of the air, as suffocates, and thereby proves suddenly fatal.

CCCXXI. If we judge rightly of the nature of this disease, it will be obvious, that the cure of it requires the most powerful remedies of inflammation, to be employed upon the very first appearance of the symptoms. When a suffocation is threatened, whether any remedies can be employed to prevent it, we have not had experience to determine.

CCCXXII. The accounts which books have hitherto given us of inflammations of the larynx, and the parts connected with it, amount to what we have now said; and the instances recorded have almost all of them happened in adult persons; but there is a peculiar affection of this kind happening, especially to infants, which till lately has been little taken notice of. Dr. Home is the first who has given any distinct account of it; but, since he wrote, several other authors have taken notice of it (see Michaelis *De angina polyposa sive membranacea, Argentorati* 1778), and have given different opinions with regard to it. Concerning this diversity of opinions, I shall not at present inquire, but shall deliver the history and cure of this disease, in so far as they have arisen from my own observation, from that of Dr. Home, and of other skilful persons in this neighbourhood.

"In all the instances which I have quoted from Sauvages and Eller, (*Synopsis Nosol.*, p. 264, Cynanche trachealis,) it is remarkable that the cases occurred in adults, and these somewhat advanced in life; the three or four cases of Eller happened towards the end of other diseases; in short, there were very few instances of this as a primary disease. Now so far did the state of our knowledge on this subject extend, and we have to observe that in all these accounts, in Boerhaave, Eller, and others, there is not the slightest mention made of the disease as frequently occurring in infants and proving fatal to them. Certainly Dr. Home is the first who has treated of the subject *ex professo*: he found so little in medical writers with regard to it, that he imagined it was a disease peculiar to Scotland, and even to certain parts of it only. I have no doubt of its being a very universal disease with regard to place and country: but we can easily account for its not being much noticed, as it is a disease which occurs in infants who cannot explain their feelings, and as it proves suddenly fatal, leaving less time for calling the physician to observe it. And considering how lately only it has been common to examine disease by dissection, we can easily perceive why, for so long a time, this affection has passed entirely unobserved."

CCCXXIII. This disease seldom attacks infants till after they have been weaned. After this period, the younger they are, the more they are liable to it. The frequency of it becomes less as children become more advanced; and there are no instances of children above twelve years of age being affected with it. It attacks children of the midland countries, as well as those who live near the sea. It does not appear to be contagious; and its attacks are frequently repeated in the same child. It is often manifestly the effect of cold applied to the body; and therefore appears most frequently in the winter and spring seasons. It very commonly comes on with the ordinary symptoms of a catarrh; but sometimes the peculiar symptoms of the disease show themselves at the very first.

CCCXXIV. These peculiar symptoms are the following: A hoarseness, with some shrillness and ringing sound, both in speaking and coughing, as if the noise came from a brazen tube. At the same time, there is a sense of pain about the larynx, some difficulty of respiration, with a whizzing sound in inspiration, as if the passage of the air were straitened. The cough which attends it is commonly dry; and if any thing be spit up, it is a matter of a purulent appearance, and sometimes films resembling portions of a membrane. Together with these symptoms, there is a frequency of pulse, a restlessness, and an uneasy sense of heat. When the internal fauces are viewed, they are sometimes without any appearance of inflammation: but frequently a redness, and even swelling appear: and sometimes in the fauces there is an appearance of matter like to that rejected by coughing. With the symptoms now described, and particularly with great difficulty of breathing, and a sense of strangling in the fauces, the patient is sometimes suddenly taken off.

"It frequently happens that the Cynanche maligna, which has its first and principal seat in the mucous membranes of the tonsils and uvula, communicates and spreads down to the glottis and trachea, and to a considerable length in the bronchiæ, and is there attended with the same sloughs that happen in the fauces, and then it will produce all the symptoms of the Cynanche stridula or trachealis."

CCCXXV. There have been many dissections made of infants who had died of this disease; and almost constantly there has appeared a preternatural membrane lining the whole internal surface of the upper part of the trachea, and extending in the same manner downwards into some of its ramifications. This preternatural membrane may be easily separated, and sometimes has been found separated in part, from the subjacent proper membrane of the trachea. This last is commonly found entire, that is, without any appearance of erosion or ulceration; but it frequently shows the vestiges of inflammation, and is covered by a matter resembling pus, like to that rejected by coughing; and very often a matter of the same kind is found in the bronchiæ, sometimes in considerable quantity.

CCCXXVI. From the remote causes of this disease, from the catarrhal symptoms commonly attending it, from the pyrexia constantly present with it, from the same kind of preternatural membrane being found in the trachea when the cynanche maligna is communicated to it, and from the vestiges of inflammation on the trachea discovered upon dissection, we must conclude, that the disease consists in an inflammatory affection of the mucous membrane of the larynx and trachea, producing an exudation analogous to that found on the surface of inflamed viscera, and appearing partly in a membranous crust, and partly in a fluid resembling pus.

CCCXXVII. Though this disease manifestly consists of an inflammatory affection, it does not commonly end either in suppuration or gangrene. The peculiar and troublesome circumstance of the disease seems to consist in a spasm of the muscles of the glottis, which, by inducing a suffocation, prevents the common consequences of inflammation.

CCCXXVIII. When this disease terminates in health, it is by a resolution of the inflammation, by a ceasing of the spasm of the glottis, by an expectoration of the matter exuding from the trachea, and of the crusts formed there; and frequently it ends without any expectoration, or at least with such only as attends an ordinary catarrh.

CCCXXIX. When the disease ends fatally, it is by a suffocation; seemingly, as we have said, depending upon a spasm affecting the glottis, but sometimes, probably, depending upon a quantity of matter filling the bronchiæ.

CCCXXX. As we suppose the disease to be an inflammatory affection, so we attempt the cure of it by the usual remedies of inflammation, and which, for the most part, I have found effectual. Bleeding, both general and topical, has often given immediate relief; and by being repeated, has entirely cured the disease. Blistering also, near to the part affected, has been found useful. Upon the first attack of the disease, vomiting, immediately after bleeding, seems to be of considerable use, and sometimes suddenly removes the disease. In every stage of the disease, the antiphlogistic regimen is necessary, and particularly the frequent use of laxative glysters. Though we suppose that a spasm affecting the glottis is often fatal in this disease, I have not found antispasmodic medicines to be of any use.

SECT. IV.—OF THE CYNANCHE PHARYNGÆA.

CCCXXXI. In the Cynanche tonsillaris, the inflammation of the mucous membrane often spreads upon the pharynx, and into the beginning of the œsophagus, and thereby renders deglutition more difficult and uneasy; but such a case does not require to be distinguished as a different species from the common Cynanche tonsillaris; and only requires that blood-letting, and other remedies, should be employed with greater diligence than in ordinary cases. We have never seen any case in which the inflammation began in the pharynx, or in which this part alone was inflamed. But practical writers have taken notice of such a case; and to them, therefore, I must refer, both for the appearances which distinguish it, and for the method of cure.

SECT. V.—OF THE CYNANCHE PAROTIDÆA.

CCCXXXII. This is a disease known to the vulgar, and among them has got a peculiar appellation in every country of Europe, but has been little taken notice of by medical writers. It is often epidemic, and manifestly contagious. It comes on with the usual symptoms of pyrexia, which is soon after attended with a considerable tumour of the external fauces and neck. This tumour appears first as a glandular moveable tumour at the corner of the lower jaw; but the swelling soon becomes uniformly diffused over a great part of the neck, sometimes on one side only, but more commonly on both. The swelling continues to increase till the fourth day; but from that period it declines, and in a few days more passes off entirely. As the swelling of the fauces recedes, some tumour affects the testicles in the male sex, or the breasts in the female. These tumors are sometimes large, hard, and somewhat painful; but, in this climate, are seldom either very painful, or of long continuance. The pyrexia attending this disease is commonly slight, and recedes with the swelling of the fauces; but sometimes, when the swelling of the testicles does not succeed to that of the fauces, or when the one or the other has been suddenly repressed, the pyrexia becomes more considerable, is often attended with delirium, and has sometimes proved fatal.

"The parotid salivary glands are not at all affected in this disease. It is an affection of the lymphatic glands. I have never seen it sporadic. It especially affects young persons, as most other contagious diseases do. I have never seen it prove fatal. It attacks people but once in their lives. If one side be affected only, the testicle of the same side only will be swelled; this was universally observed in the epidemic of Belleisle."

CCCXXXIII. As this disease commonly runs its course without either dangerous or troublesome symptoms, so it hardly requires any remedies. An antiphlogistic regimen, and avoiding cold, are all that will be necessary. But when, upon the receding of the swellings of the testicles in males, or of the breasts in females, the pyrexia comes to be considerable, and threatens an affection of the brain, it will be proper, by warm fomentations, to bring back the swelling; and, by vomiting, bleeding, or blistering, to obviate the consequence of its absence.

CHAP. VI.—OF PNEUMONIA, OR PNEUMONIC INFLAMMATION.

CCCXXXIV. Under this title I mean to comprehend the whole of the inflammations affecting either the viscera of the thorax, or the membrane lining the interior surface of that cavity: for neither do our diagnostics serve to ascertain exactly the seat of the disease; nor does the difference in the seat of the disease exhibit any considerable variation in the state of the symptoms, nor lead to any difference in the method of cure.

"In order to determine the distinction which it is proper to make here, I must begin by observing, that an inflammation of the pulmonic system may have three different seats in these parts:

"*First*, In the mucous membrane of the trachea, and particularly of the bronchiæ; for in the latter case only it will appear as an affection of the lungs. This I take to be always the case of catarrh, which I have referred to another head, that of profluvia.

"*Secondly*, In the cellular texture of the lungs, otherwise called the parenchyma of the lungs. But there are several doubts with regard to the inflammation supposed to be seated in the cellular textures, commonly called the parenchyma of the lungs. I am adverse to admit, that any inflammation is primarily seated there. So far as I can observe, the seat of all inflammation is in membranous parts; or, considering, according to the idea of anatomists, all membranes as condensed cellular textures, inflammation is universally seated in such firm cellular texture as we call membrane. The supposition of an inflammation having a different seat, in a perfectly loose cellular texture, may apply to three cases—the brain, the lungs, and the liver. We know that it is chiefly situated in the membranous parts of these organs, and though it does appear in the cellular texture or parenchymatous parts, still it is doubtful if it did not begin in the membranous part, in the interior layer of some serous membrane, as the pia mater, pleura, peritonæum, &c. which have an exterior layer of a firmer, and an internal of a more cellular texture; and so it may imperfectly go into the more loose cellular texture subjected to the membrane, although it probably begins in the membranous part.

" This is the idea which I am willing to entertain as to this sort of inflammation, but I am adverse to forming any absolute universal conclusion. What gives me doubts with regard to my opinion, is the fact of affections of the cellular texture sufficiently detached from the membranous parts; such as purulent affections and abscesses, which are allowed to be undoubtedly the consequence of inflammation; but let me observe that this does not apply, in many cases, for the purulent affections found upon dissection in the brain, the lungs, and particularly the liver, are such as have passed through the inflammatory state unheeded or without any inflammatory symptoms. I think they are to be considered as originally effusions depending upon some other cause than that of inflammations, and in which the matter at length, by its bulk and acrimony, came to stimulate and to excite inflammation in the contiguous part. There still remains a probability, therefore, that there is no inflammation which arises suddenly, or discovers itself by its symptoms, but that which has its chief seat in membranous parts. I must moreover add, that there are membranous parts where the affected vessels are laid in so firm and compact a manner as will not admit of effusion, as in the case of Rheumatism and Ophthalmia, and others. As these communicate with a lax cellular texture, the effusion, if it takes place, makes the seat of the disease appear to be in that cellular texture.

" In this way I suppose that there is still some foundation for the distinction of parenchymatous and membranous inflammations, and therefore that the seat in the parenchyma or cellular texture of the lungs is not totally to be excluded.

" *Thirdly*, In the Pleura, or that membrane which includes the lungs and invests their whole surface. This inflammation may be different according to the parts which it occupies:—1. In that portion of the pleura, which invests the lungs themselves (Pleuritis pulmonalis); 2. In that portion which lines the insides of the ribs (Pleuritis costalis); 3. In that portion which is extended over the diaphragm (Pleuritis diaphragmatica); 4. In that portion which forms the mediastinum (Pleuritis mediastina); 5. In that portion which forms the outer sac or membrane of the pericardium (Pleuritis pericardiaca.). Whether these distinctions are of any importance, or can be distinctly marked, is uncertain.

"I thought proper to take this general view, in some measure theoretical, of the *possible* seats of pulmonic inflammations; but now I add that our distinctions of diseases are not to be taken from such theoretical considerations of their internal seat. Such distinctions cannot be admitted in Nosology, where we must found them upon a concourse of symptoms."

CCCXXXV. Pneumonic inflammation, however various in its seat, seems to me to be always known and distinguished by the following symptoms:—Pyrexia, difficult breathing, cough, and pain in some part of the thorax. But these symptoms are, on different occasions, variously modified.

CCCXXXVI. The disease almost always comes on with a cold stage, and is accompanied with the other symptoms of pyrexia; though, in a few instances, the pulse may not be more frequent nor the heat of the body increased beyond what is natural. Sometimes the pyrexia is from the beginning accompanied with other symptoms; but frequently it is formed for some hours before the other symptoms become considerable, and particularly before the pain be felt. For the most part, the pulse is frequent, full, strong, hard, and quick; but, in a few instances, especially in the advanced state of the disease, the pulse is weak and soft, and at the same time irregular.

CCCXXXVII. The difficulty of breathing is always present, and most considerable in inspiration; both because the lungs do not easily admit of a full dilatation, and because the dilatation aggravates the pain attending the disease. The difficulty of breathing is also greater when the patient is in one posture of his body rather than another. It is generally greater when he lies upon the side affected; but sometimes the contrary happens. Very often the patient cannot lie easy upon either side, finding ease only when lying on his back; and sometimes he cannot breathe easily, except when in somewhat of an erect posture.

CCCXXXVIII. A cough always attends this disease; but, in different cases, is more or less urgent and painful. It is sometimes dry, that is, without any expectoration, especially in the beginning of the disease; but more commonly it is, even from the first, moist, and the matter spit up various, both in consistence and colour, and frequently it is streaked with blood.

CCCXXXIX. The pain attending this disease is, in different cases, felt in different parts of the thorax, but most frequently in one side. It has been said to affect the right side more frequently than the left; but this is not certain; while, on the other hand, it is certain that the left side has been very often affected. The pain is felt sometimes as if it were under the sternum, sometimes in the back between the shoulders; and when in the sides, its place has been higher or lower, more forward or backward: but the place of all others most frequently affected is about the sixth or seventh rib, near the middle of its length, or a little more forward. The pain is often severe and pungent; but sometimes more dull and obtuse, with a sense of weight rather than of pain. It is most especially severe and pungent when occupying the last place mentioned. For the most part, it continues fixed in one place; but sometimes shoots from the side to the scapula on the one hand, or to the sternum and clavicle on the other.

CCCXL. The varying state of symptoms now mentioned does not always ascertain precisely the seat of the disease. To me it seems probable that the disease is always seated, or at least begins in some part of the pleura: taking that membrane in its greatest extent, as now commonly understood, that is, as covering not only the internal surface of the cavity of the thorax, but also as forming the mediastinum, and as extended over the pericardium, and over the whole surface of the lungs.

CCCXLI. There is, therefore, little foundation for distinguishing this disease by different appellations taken from the part which may be supposed to be chiefly affected. The term Pleurisy might with propriety be applied to every case of the disease; and has been very improperly limited to that inflammation which begins in, and chiefly affects the *pleura costalis.* I have no doubt that such a case does truly occur, but at the same time I apprehend it to be a rare occurrence; and that the disease much more frequently begins in, and chiefly affects the pleura investing the lungs, producing all the symptoms supposed to belong to what has been called the *Pleuritis vera.*

CCCXLII. Some physicians have imagined that there is a case of pneumonic inflammation, particularly entitled to the appellation of Peripneumony; and that is, the case of an inflammation beginning in the parenchyma or cellular texture of the lungs, and having its seat chiefly there. But it seems to me very doubtful if any acute inflammation of the lungs, or any disease which has been called Peripneumony, be of that kind. It seems probable that every acute inflammation begins in membranous parts; and in every dissection of persons dead of peripneumony, the external membrane of the lungs, or some part of the pleura, has appeared to have been considerably affected.

CCCXLIII. An inflammation of the pleura covering the upper surface of the diaphragm, has been distinguished by the appellation of *Paraphrenitis*, as supposed to be attended with the peculiar symptoms of delirium, risus sardonicus, and other convulsive motions: but it is certain that an inflammation of that portion of the pleura, and affecting also even the muscular substance of the diaphragm, has often taken place without any of these symptoms; and I have not met with either dissections, or any accounts of dissections, which support the opinion that an inflammation of the pleura covering the diaphragm is attended with delirium more commonly than any other pneumonic inflammation.

CCCXLIV. With respect to the seat of pneumonic inflammation, I must observe further, that although it may arise and subsist chiefly in one part of the pleura only, it is, however, frequently communicated to other parts of the same, and commonly communicates a morbid affection through its whole extent.

CCCXLV. The remote cause of pneumonic inflammation is, commonly, cold applied to the body, obstructing perspiration, and determining to the lungs; while, at the same time, the lungs themselves are exposed to the action of cold. These circumstances operate especially when an inflammatory diathesis prevails in the system; and, consequently, upon persons of the greatest vigour, in cold climates, in the winter season, and particularly in the spring, when vicissitudes of heat and cold are frequent. The disease, however, may arise in any season when such vicissitudes occur.

Other remote causes also may have a share in this matter;

such as every means of obstructing, straining, or otherwise injuring the pneumonic organs.

Pneumonic inflammation may happen to persons of any age, but rarely to those under the age of puberty; and most commonly it affects persons somewhat advanced in life, as those between forty-five and sixty years; those, too, especially of a robust and full habit.

The pneumonic inflammation has been sometimes so much an epidemic, as to occasion a suspicion of its depending upon a specific contagion; but I have not met with any evidence in proof of this.—(See *Morgagni de causis et sedibus morborum*, epist. xxi. art. 26.)

CCCXLVI. The pneumonic, like other inflammations, may terminate by resolution, suppuration, or gangrene; but it has also a termination peculiar to itself, as has been hinted above (CCLIX.); and that is, when it is attended with an effusion of blood into the cellular texture of the lungs, which soon, interrupting the circulation of the blood through this viscus, produces a fatal suffocation. This, indeed, seems to be the most common termination of pneumonic inflammation, when it ends fatally; for, upon the dissection of almost every person dead of the disease, it has appeared that such an effusion had happened.

"There is hardly a case of peripneumony, where a considerable serous or catarrhal effusion in the cavity of the bronchiæ alone has proved the cause of this suffocation: for the most part we find, that a considerable part of one or both lobes of the lungs is full of blood, whereby their ordinary white spongy appearance is changed into a liver-coloured heavy mass, to be compared to a piece of liver, and, contrary to the sound state of the lungs, sinking in water. You will find this matter sufficiently established by Morgagni, Lieutaud, and all the later dissectors, and with this influence on our practice, that the great point in view in this inflammation is to obviate this effusion, which, when it has taken place to any considerable degree, may be considered as incurable."

CCCXLVII. From these dissections also we learn, that pneumonic inflammation commonly produces an exudation from the internal surface of the pleura; which appears partly as a soft viscid crust, often of a compact, membranous form, covering everywhere the surface of the pleura, and particularly those parts where the lungs adhere to the pleura costalis, or mediastinum; and this crust seems always to be the cement of such adhesions.

The same exudation shows itself also by a quantity of a serous whitish fluid, commonly found in the cavity of the thorax; and some exudation or effusion is usually found to have been made likewise into the cavity of the pericardium.

"These two states, effusion and adhesion, are matters of fact, and past all doubt. In the three following paragraphs I add others, which are at least probable, and which are proper matters of inquiry and speculation for you."

CCCXLVIII. It seems probable, too, that a like effusion is sometimes made into the cavity of the bronchiæ: for, in some persons who have died after labouring under a pneumonic inflammation for a few days only, the bronchiæ have been found filled with a considerable quantity of a serous and thickish fluid; which, I think, must be considered rather as the effusion mentioned having had its thinner parts taken off by respiration, than as a pus so suddenly formed in the inflamed part.

CCCXLIX. It is, however, not improbable, that this effusion, as well as that made into the cavities of the thorax and pericardium, may be a matter of the same kind with that which, in other inflammations, is poured into the cellular texture of the parts inflamed, and there converted into pus; but, in the thorax and pericardium, it does not always assume that appearance, because the crust covering the surface prevents the absorption of the thinner part. This absorption, however, may be compensated in the bronchiæ by the drying power of the air; and therefore the effusion into them may put on a more purulent appearance.

In many cases of pneumonic inflammation, when the Sputa are very copious, it is difficult to suppose that the whole of them proceed from the mucous follicles of the bronchiæ. It seems more probable that a great part of them may proceed from the effused serous fluid we have been mentioning; and this, too, will account for the sputa being so often of a purulent appearance. Perhaps the same thing may account for that purulent expectoration, as well as that purulent matter found in the bronchiæ, which the learned Mr. de Haen says he had so often observed, when there was no ulceration of the lungs; and this explanation is at least more probable than Mr. de Haen's supposition of a pus formed in the circulating blood.

CCCL. To conclude this subject, it would appear that the effusion into the bronchiæ, which we have mentioned, often concurs with the effusion of red blood in occasioning the suffocation which fatally terminates pneumonic inflammation; that the effusion of serum alone may have this effect; and that the serum poured out in a certain quantity, rather than any debility in the powers of expectoration, is the cause of that ceasing of expectoration which very constantly precedes the fatal event. For, in many cases, the expectoration has ceased, when no other symptoms of debility have appeared, and when, upon dissection, the bronchiæ have been found full of liquid matter. Nay, it is even probable, that, in some cases, such an effusion may take place, without any symptoms of violent inflammation; and, in other cases, the effusion taking place may seem to remove the symptoms of inflammation which had appeared before, and thus account for those unexpected fatal terminations which have sometimes happened. Possibly this effusion may account also for many of the phenomena of the Peripneumonia Notha.

CCCLI. Pneumonic inflammation seldom terminates by resolution, without being attended with some evident evacuation. An hæmorrhagy from the nose happening upon some of the first days of the disease, has sometimes put an end to it; and it is said, that an evacuation from the hæmorrhoidal veins, a bilious evacuation by stool, and an evacuation of urine with a copious sediment, have severally had the same effect: but such occurrences have been rare and unusual.

The evacuation most frequently attending, and seeming to have the greatest effect in promoting resolution, is an expectoration of a thick white or yellowish matter, a little streaked with blood, copious, and brought up without either much or violent coughing.

Very frequently the resolution of this disease is attended with, and perhaps produced by, a sweat, which is warm, fluid, copious over the whole body, and attended with an abatement of the frequency of the pulse, of the heat of the body, and of other febrile symptoms.

CCCLII. The prognostics in this disease are formed from observing the state of the principal symptoms.

A violent pyrexia is always dangerous; "because the more violent the circulation, the more readily will an effusion be produced."

The danger, however, is chiefly denoted by the difficulty of breathing. When the patient can lie on one side only; when he can lie on neither side, but upon his back only; when he cannot breathe with tolerable ease, except the trunk of his body be erect; when, even in this posture, the breathing is very difficult, and attended with a turgescence and flushing of the face, together with partial sweats about the head and neck, and an irregular pulse; these circumstances mark the difficulty of breathing in progressive degrees, and consequently, in proportion, the danger of the disease.

A frequent violent cough, aggravating the pain, is always the symptom of an obstinate disease.

As I apprehend that the disease is hardly ever resolved, without some expectoration, so a dry cough must be always an unfavourable symptom.

As the expectoration formerly described marks that the disease is proceeding to a resolution, so an expectoration, which has not the conditions there mentioned, must denote at least a doubtful state of the disease; but the marks taken from the colour of the matter are for the most part fallacious.—"I have often seen the patient recover after expectorating bloody, sometimes purulent greenish matter."

An acute pain, very much interrupting inspiration, is always the mark of a violent disease; though not of one more dangerous than an obtuse pain, attended with very difficult respiration.

When the pains, which at first had affected one side only, have afterwards spread into the other; or when, leaving the side first affected, they entirely pass into the other, these are always marks of an increasing, and therefore of a dangerous disease.

A delirium coming on during a pneumonic inflammation, is constantly a symptom denoting much danger; "either as arising from the violence of the fever, or in consequence of the ready return of the blood from the head to the right ventricle of the heart being impeded, or from the phlogistic diathesis acting on the brain. It is not certainly and absolutely dangerous, but must always alarm."

CCCLIII. When the termination of this disease proves fatal, it is on one or other of the days of the first week, from the third to the seventh. This is the most common case; but, in a few instances, death has happened at a later period of the disease.

When the disease is violent, but admitting of resolution, this also happens frequently in the course of the first week; but, in a more moderate state of the disease, the resolution is often delayed to the second week.

The disease, on some of the days from the third to the seventh, generally suffers a remission; which, however, may be often fallacious, as the disease does sometimes return again with as much violence as before, and then with great danger.

"There is a very curious fact, which I think has been clearly delivered only by Dr. Cleghorn, and repeated by Dr. Font, viz. that whatever be the management of peripneumony and pleurisy, about the end of the third or beginning of the fourth day a very considerable remission of all the symptoms happens, which may in different cases take place any time between the third and seventh day. The by-standers are on account of this remission easy as to the event: but it is as constant, that the day after the remission, sooner or later the disease returns with a remarkable exacerbation, and is very often incurable. I would explain this on the principle, that this remission occurs when the effusion takes place to a considerable degree, the first effect of which will be to relieve the distention which had taken place in the membrane, and therefore to produce a seeming remission in the symptoms. I regret extremely that Dr. Cleghorn has not been more explicit with regard to this subject; for I can see the probability of the explanation as to the pain, but would wish to be told, whether it holds equally so with regard to the anxiety and dyspnoea; for I must own, that for want of my attention being properly directed to this, and of so large an experience, I have not myself clearly and distinctly observed this."

Sometimes the disease disappears on the second or third day, while an erysipelas makes its appearance on some external part; and, if this continue fixed, the pneumonic inflammation does not recur.

CCCLIV. Pneumonia, like other inflammations, often ends in suppuration or gangrene.

CCCLV. When a pneumonia, with symptoms neither very violent nor very slight, has continued for many days, it is to be feared it will end in a suppuration. This, however, is not to be determined precisely by the number of days: for, not only after the fourth, but even after the tenth day, there have been examples of a pneumonia ending by a resolution; and, if the disease has suffered some intermission, and again recurred, there may be instances of a resolution happening at a much later period from the beginning of the disease than that just now mentioned.

CCCLVI. But, if a moderate disease, in spite of proper remedies employed, be protracted to the fourteenth day without any considerable remission, a suppuration is pretty certainly to be expected; and it will be still more certain if no signs of resolution have appeared, or if an expectoration which had appeared shall have again ceased, and the difficulty of breathing has continued or increased, while the other symptoms have rather abated.

CCCLVII. That in a pneumonia the effusion is made, which may lay the foundation of a suppuration, we conclude from the difficulty of breathing becoming greater when the patient is in a horizontal posture, or when he can lie more easily upon the affected side.

CCCLVIII. That, in such cases, a suppuration has actually begun, may be concluded from the patient's being frequently affected with slight cold shiverings, and with a sense of cold felt sometimes in one and sometimes in another part of the body. We form the same conclusion also from the state of the pulse, which is commonly less frequent and softer, but sometimes quicker and fuller than before.

CCCLIX. That a suppuration is already formed, may be inferred from there being a considerable remission of the pain which had before subsisted, while, along with this, the cough, and especially the dyspnoea, continue, and are rather augmented. At the same time, the frequency of the pulse is rather increased; the feverish state suffers considerable exacerbations every evening, and by degrees a hectic, in all its circumstances, comes to be formed.

CCCLX. The termination of Pneumonia by gangrene, is much more rare than has been imagined; and, when it does occur, it is usually joined with the termination by effusion (CCCXLVI.); and the symptoms of the one are hardly to be distinguished from those of the other.

CCCLXI. The cure of pneumonic inflammation must proceed upon the general plan (CCXLIV.); but the importance of the part affected, and the danger to which it is exposed, require that the remedies be fully, as well as early employed.

CCCLXII. The remedy chiefly to be depended upon, is that of bleeding at the arm, which will be performed with most advantage in the arm of the side affected, but may be done in either arm, as may be most convenient for the patient or the surgeon. The quantity drawn must be suited to the violence of the disease, and to the vigour of the patient; and generally ought to be as large as this last circumstance will allow. The remission of pain, and the relief of respiration, during the flowing of the blood, may limit the quantity to be then drawn; but if these symptoms of relief do not appear, the bleeding should be continued till the symptoms of a beginning syncope come on. It is seldom that one bleeding, however large, will prove a cure of this disease; and although the pain and difficulty of breathing may be much relieved by the first bleeding, these symptoms commonly, and after no long interval, recur, often with as much violence as before. In the event of such recurrence, the bleeding is to be repeated, even in the course of the same day, and perhaps to the same quantity as before.

Sometimes the second bleeding may be larger than the first. There are persons who, by their constitution, are ready to faint even upon a small bleeding; and in such persons this may prevent the drawing so much blood at first as a pneumonic inflammation might require; but as the same persons are often found to bear after-bleedings better than the first, this allows the second and subsequent bleedings to be larger, and to such a quantity as the symptoms of the disease may seem to demand.

CCCLXIII. It is according to the state of the symptoms that bleedings are to be repeated; and they will be more effectual when practised in the course of the first three days than afterwards; but they are not to be omitted although four days of the disease may have already elapsed. If the physician shall not have been called in sooner, or if the bleedings practised during the first days shall not have been large enough, or even although these bleedings shall have procured some remission, yet they should be repeated at any period of the disease, especially within the first fortnight, and even afterwards, if a tendency to suppuration be not evident; or if, after a seeming solution, the disease shall have again returned.

CCCLXIV. With respect to the quantity of blood which ought, or which with safety may be taken away, no general rules can be delivered, as it must be very different, according to the state of the disease and the constitution of the patient. In an adult male of tolerable strength, a pound of blood, avoirdupois, is a full bleeding. Any quantity above twenty ounces is a large, and any quantity below twelve, a small bleeding. A quantity of from four to five pounds, in the course of two or three days, is generally as much as such patients will safely bear; but if the intervals between the bleeding and the whole of the time during which the bleedings have been employed have been long, the quantity taken, upon the whole, may be greater.

CCCLXV. When a large quantity of blood has been already taken from the arm, and when it is doubtful if more can with safety be drawn in that manner, some blood may still be taken by cupping and scarifying. Such a measure will be more particularly proper, when the continuance or recurrence of pain, rather than the difficulty of breathing, becomes the urgent symptom; and then the cupping and scarifying should be made as near to the pained part as can conveniently be done.

CCCLXVI. An expectoration takes place sometimes very early in this disease; but if, notwithstanding that, the urgent symptoms should still continue, the expectoration must not supersede the bleedings mentioned; and during the first days of the disease, its solution is not to be trusted to the expectoration alone. It is in a more advanced stage only, when the proper remedies have been before employed, and when the symptoms have suffered a considerable remission, that the entire cure may be trusted to a copious and free expectoration.

CCCLXVII. During the first days of the disease, I have not found that bleeding stops expectoration. On the contrary, I have often observed bleeding promote it; and it is in a more advanced stage of the disease only, when the patient, by large evacuations, and the continuance of the disease, has been already exhausted, that bleeding seems to stop expectoration. It appears to me, that even then bleeding does not stop expectoration, so much by weakening the powers of expectoration as by favouring the serous effusion into the bronchiæ (CCCXLVIII.) and thereby preventing it.

" An important question in the management of peripneumony and pleurisy, is to determine what influence the consideration of the expectoration is to have upon our blood-letting. That such a doubt occurs, appears from the words of Sir John Pringle. He says that the question often is, whether we are not in danger of allowing the lungs to be overpowered by too copious effusion, the consequence of neglected venesection ; or, upon the other hand, whether we may not, by copious venesection, suppress the evacuation by expectoration, by which nature commonly relieves the disease. But Sir John Pringle has not told us how we are to judge of the one and of the other tendency ; he refers to Huxham and Van Swieten, but neither of them have assisted me in determining the question which often occurs.

" I have not met with any instances where I thought that expectoration was suppressed by too copious venesection ; but, on the contrary, I have seen cases of peripneumony and pleurisy, which from the beginning were attended with a copious expectoration, and yet for want of bleeding proved fatal. The effects of bleeding on the expectoration may be viewed in two different lights :—

" *First*, In as far as bleeding may occasion debility, and thereby disable the lungs from throwing off the considerable quantity of water which was poured into their cavities. This case, Morgagni alleges to have frequently existed, particularly in old persons. I am very ready to admit of it, but I take it to be limited to very copious catarrhal effusions in old persons.

" *Secondly*, In as far as it may by revulsion diminish the secretion, which has been supposed to take place when there was no matter poured out into the bronchiæ. We must distinguish between the secretion and the expectoration. Now, the question is, how far bleeding diminishes the secretion, the exhalation from the exhalant arteries, and the secretion from the mucous follicles. I am very adverse to admit this theory, from the consideration that venesection is not very powerful in the way of revulsion; and when I consider that the quantity of blood commonly drawn from a vein, in the arm for instance, is divided among the extreme arteries of the whole system, it appears to me that it can have no sensible effects upon each of them, till it induces such a debility on the whole system, as to diminish every kind of secretion: this case is possible, but can hardly occur from any bleeding which we practice in this case, and which is alleged to have affected the lungs.

" But I will give another view of this matter. That state of the lungs in peripneumony and pleurisy, in which no secretion takes place, depends, I think, on the same circumstances which support the inflammation in general, the extreme vessels of the lungs being affected with a spasm. And bleeding is the remedy which takes off the spasm on which the inflammation depends, and which, therefore, also promotes the diminished secretion; so that where no secretion exists, bleeding is the most likely means to bring it on. I have observed, in many cases where the disease began with a dry cough without any expectoration, that the venesection relieved the dyspnoea and pain, and brought on an expectoration: I am of opinion, therefore, that it is more frequently a means of bringing on than of diminishing expectoration.

" But to bring the matter nearer to a particular case: the expectoration which sometimes occurs in the beginning of the disease, is to be considered as an effect of the violence of the disease; as an effect, I would say, of the increased impetus, which forces the exhalant vessels on the surface of the lungs, and so often produces an effusion into the cellular texture. Such an expectoration, however large and free, is rather to be considered as a morbid symptom than as a resolution; and however early an expectoration appears, if it does not, at the same time, take off the difficulty of breathing and pain which attend, and produce a slower pulse, it is not to be regarded, and the disease still requires copious bleeding.

"When, on the other hand, copious venesection has already been employed for the first two or three days of the disease, so that it becomes a question whether or not it ought to be carried further; then the presence of a free expectoration, with relief of the symptoms, will very properly remove our doubts, and induce us to relinquish bleeding, not for fear of diminishing the expectoration, but for fear of hurting the system in other respects.

"The sum of my opinion on the subject is: Wherever the symptoms are not relieved, where the principal pain recurs with violence, with difficulty of perspiration and considerable anxiety, under such circumstances no expectoration will supersede venesection, unless that has been pushed to its height. And, in general, I have had occasion to observe in practice, that abstinence from venesection, in hopes of expectoration taking place, has done harm in fifty cases, where bleeding has done harm in one."

CCCLXVIII. While the bleedings we have mentioned shall be employed, it will be necessary to employ also every part of the antiphlogistic regimen (CXXX.—CXXXII.), and particularly to prevent the irritation which might arise from any increase of heat. For this purpose, it will be proper to keep the patient out of bed, while he can bear it easily; and, when he cannot, to cover him very lightly while he lies in bed. The temperature of his chamber ought not to exceed 50° of Fahrenheit's thermometer; and whether it may be at any time colder, I am uncertain.

CCCLXIX. Mild and diluent drinks, moderately tepid, at least never cold, given by small portions at a time, ought to be administered plentifully. These drinks may be impregnated with vegetable acids. They may be properly accompanied also with nitre, or some other neutrals; but these salts should be given separately from the drink.

It has been alleged, that both acids and nitre are ready to excite coughing; and in some persons they certainly have this effect; but, except in persons of a peculiar habit, I have not found their effects in exciting cough so considerable or troublesome as to prevent our seeking the advantages otherwise to be obtained from these medicines.

CCCLXX. Some practitioners have doubted if purgatives can be safely employed in this disease; and indeed a spontaneous diarrhœa occurring in the beginning of the disease, has seldom proved useful: but I have found the moderate use of cooling laxatives generally safe; and have always found it useful to keep the belly open by frequent emollient glysters.

CCCLXXI. To excite full vomiting by emetics, I judge to be a dangerous practice in this disease: but I have found it useful to exhibit nauseating doses; and, in a somewhat advanced state of the disease, I have found such doses prove the best means of promoting expectoration.

"The French practitioners, particularly those averse from bleeding, have recourse to the Tartar Emetic, in small doses, so as to excite only nausea, and, as they allege, with advantage; and to me it appears not improbable that this remedy may be useful in regard to the general fever, to take off the spasm: but I cannot imagine that it has any considerable effect on the topical inflammation.

"We conclude, that the use of emetics and purgatives is somewhat doubtful here. They are certainly not to be depended upon as very efficacious remedies, or as evacuations which can supersede the use of venesection."

CCCLXXII. Fomentations and poultices applied to the pained part have been recommended, and may be useful; but the application of them is often inconvenient, and may be entirely omitted for the sake of the more effectual remedy, blistering.

Very early in the disease, a blister should be applied as near to the pained part as possible. But as, when the irritation of a blister is present, it renders bleeding less effectual; so the application of the blister should be delayed till a bleeding shall have been employed. If the disease be moderate, the blister may be applied immediately after the first bleeding; but if the disease be violent, and it is presumed that a second bleeding may be necessary soon after the first, it will then be peoper to delay the blister till after the second bleeding, when it may be supposed that any farther bleeding may be postponed till the irritation arising from the blister shall have ceased. It may be frequently necessary in this disease to repeat the blistering; and, in that case, the plasters should always be applied somewhere on the thorax; for, when applied to more distant parts, they have little effect. The keeping the blistered parts open, and making what is called a perpetual blister, has much less effect than a fresh blistering.

CCCLXXIII As this disease often terminates by an expectoration, so various means of promoting this have been proposed; but none of them appeared to be very effectual; and some, being acrid stimulant substances, cannot be very safe.

The gums usually employed seem too heating: squills seem to be less so; but they are not very powerful, and sometimes inconvenient by the constant nausea they induce.

The volatile alkali may be of service as an expectorant; but it should be reserved for an advanced state of the disease.

Mucilaginous and oily demulcents appear to be useful, by allaying that acrimony of the mucus which occasions too frequent coughing; and which coughing prevents the stagnation and thickening of the mucus, and thereby its becoming mild.

The receiving into the lungs the steams of warm water impregnated with vinegar, has often proved useful in promoting expectoration.

But of all other remedies, the most powerful for this purpose are antimonial medicines, given in nauseating doses, as in CLXXIX. Of these, however, I have not found the kermes mineral more efficacious than emetic tartar, or antimonial wine; and the dose of the kermes is much more uncertain than that of the others.

" As all the fetid gums seem to be determined to the lungs, and to promote expectoration, so I have found the asafœtida the most powerful for this purpose, and more powerful than the ammoniac so frequently employed.

" With regard to the employment of squills as an expectorant, it is hardly necessary to observe, that it must be given in such small doses as may not occasion its acting upon the stomach or intestines, as the one would prevent its being frequently repeated, and the other would prevent its passing into the mass of the blood, where its action as an expectorant can only take place. Its acting as a diuretic is always a mark of it having entered the mass of the blood; and it is my opinion, that it is not to be expected to act as an expectorant, but when it appears also to act upon the kidneys.—*M. M.*

"I am ready to believe, that the volatile alkali is much more effectual than squills or gum ammoniac, and more powerful in affecting the mucous glands. Though it be not given in large quantity, it is of so volatile a nature, that it is readily propagated over the whole system: but it is a very powerful stimulant, and is not admissible till the fever is abated considerably; as in the end of peripneumony, when it is changed into a catarrhal state, which continues with an effusion of a remarkable viscid mucus into the cavity of the bronchiæ. In this case the volatile alkali is found to be one of the most useful expectorants."

CCCLXXIV. Though a spontaneous sweating often proves the crisis of this disease, it ought not be excited by art, unless with much caution. At least, I have not yet found it either so effectual or safe as some writers have alleged. When, after some remission of the symptoms, spontaneous sweats of a proper kind arise, they may be encouraged; but it ought to be without much heat, and without stimulant medicines. If, however, the sweats be partial and clammy only, and a great difficulty of breathing still remain, it will be very dangerous to encourage them.

CCCLXXV. Physicians have differed much in opinion with regard to the use of opiates in pneumonic inflammation. To me it appears, that, in the beginning of the disease, and before bleeding and blistering have produced some remission of the pain and of the difficulty of breathing, opiates have a very bad effect, by their increasing the difficulty of breathing, and other inflammatory symptoms. But in a more advanced state of the disease, when the difficulty of breathing has abated, and when the urgent symptom is a cough, proving the chief cause of the continuance of the pain and of the want of sleep, opiates may be employed with great advantage and safety. The interruption of the expectoration, which they seem to occasion, is for a short time only; and they seem often to promote it, as they occasion a stagnation of what was by frequent coughing dissipated insensibly, and therefore give the appearance of what physicians have called Concocted Matter.

" I have in the Synopsis set down the peripneumonia and the pleuritis complicated with an intermittent or continued fever: this is a subject which has been hitherto unnoticed in our system, but it certainly deserved particular consideration.

" In cases of the Tertiana pleuritica, it is a frequent occurrence, that a topical inflammation attends the paroxysm only of an intermittent fever, when there will be no difficulty in the treatment of the case; but the case which certainly has confounded practitioners, and may do so again, is that of remittents, where neither the fever nor the pleuritic symptoms were ever entirely absent. The question will be, whether such a case is to be treated as a pleurisy or as an intermittent. From most practitioners it appears that the treatment ought to be of a mixed kind. Lautter, at the first appearance, proceeded to bleeding; but he came to find that it was not necessary, but that the bark was necessary, and given with perfect success, the pleuritic symptoms disappearing with those of the intermittent fever. The application of this will be easy. More or less bleeding may be necessary according to the violence of the inflammatory symptoms, but the cure of the fever may be trusted entirely to the bark.

" Having observed this complication with regard to intermittents, we say that pneumonic inflammation may also be connected with a synochus or typhus: it is always combined with a synocha, which is there considered as symptomatic; but the continued fever of which I speak here, as synochus or typhus, I must suppose to be a fever depending upon contagion, and not symptomatic of the pleuritic affection. This case has occurred, but has been noticed as yet only by Sauvages in consequence of his nosological inquiries. I cannot enter into a particular criticism of the species set down by Sauvages, but I would give the general idea, that these complications are purely and entirely accidental: We have, in winter almost every day, instances of contagious nervous fevers, which, during the cold season, come to be complicated with more or less catarrh; and in some cases I was disposed to think that even peripneumony to some degree was joined; but I took it to be an accidental complication of the fever from contagion with these symptoms from cold at a pleuritic and peripneumonic season.

"I own the treatment of this disease has often puzzled me. I am certain that in fifty instances the disease was to be considered as a typhus or nervous fever, not admitting of venesection; for I can say with confidence, that the few cases which proved fatal, did not do so from want of bleeding, for some were blooded very freely, and many others escaped the disease without bleeding. I have at present in the clinical ward a case which puzzled me: it came on with a fever, seemingly from contagion, which the patient received from his wife whom he had attended in a nervous fever, and who died from it two days after he had been attacked. This man did not come in till the ninth day of the disease, with considerable difficulty of breathing, a hard ringing cough, and some fulness in his pulse; so that I, knowing nothing of the history of the contagion, ordered him to be blooded; but that being accidentally delayed till we had information of the contagion, we have abstained from it, and the disease is going on in an easy and safe manner: still I am not satisfied whether or not he ought to have been blooded. This is certainly a case which occurs frequently among those described by authors as violent peripneumony. In this accidental combination we must be guided by the prevalence of symptoms. If the inflammatory symptoms are very considerable, so that they induce a real phlogistic diathesis, bleeding may be admitted; but, in other cases, from the nature of the contagion producing a typhus, we must act with caution."

CHAP. VII.—OF THE PERIPNEUMONIA NOTHA, OR BASTARD PERIPNEUMONY.

CCCLXXVI. A disease under this name is mentioned in some medical writings of the sixteenth century; but it is very doubtful if the name was then applied to the same disease to which we now apply it. It appears to me, that unless some of the cases described under the title of Catarrhus Suffocativus be supposed to have been of the kind I am now to treat of, there was no description of this disease given before that by Sydenham under the title I have employed here.

CCCLXXVII. After Sydenham, Boerhaave was the first who in a system took notice of it as a distinct disease; and he has described it in his aphorisms, although with some circumstances different from those in the description of Sydenham. Of late, Mr. Lieutaud has with great confidence asserted, that Sydenham and Boerhaave had, under the same title, described different diseases; and that, perhaps, neither of them had, on this subject, delivered any thing but hypothesis.

CCCLXXVIII. Notwithstanding this bold assertion, I am humbly of opinion, and the Baron Van Swieten seems to have been of the same, that Sydenham and Boerhaave did describe, under the same title, one and the same disease. Nay, I am further of opinion, that the disease described by Mr. Lieutaud himself, is not essentially different from that described by both the other authors. Nor will the doubts of the very learned but modest Morgagni, on this subject, disturb us, if we consider that, while very few describers of diseases either have it in their power, or have been sufficiently attentive in distinguishing between the essential and accidental symptoms of disease, so, in a disease which may have not only different, but a greater number of symptoms in one person than it has in another, we need not wonder, that the descriptions of the same disease by different persons should come out in some respects different. I shall, however, enter no farther into this controversy, but endeavour to describe the disease as it has appeared to myself; and, as I judge, in the essential symptoms, much the same as it has appeared to all the other authors mentioned.

CCCLXXIX. This disease appears at the same seasons that other pneumonic and catarrhal affections commonly do; that is, in autumn and in spring. Like these diseases also, it is seemingly occasioned by sudden changes of the weather from heat to cold. It appears also, during the prevalence of contagious catarrhs; and it is frequently under the form of the Peripneumonia Notha, that these catarrhs prove fatal to elderly persons.

This disease attacks most commonly persons somewhat advanced in life, especially those of a full phlegmatic habit; those who have before been frequently liable to catarrhal affections; and those who have been much addicted to the large use of fermented and spirituous liquors.

The disease commonly comes on with the same symptoms as other febrile diseases; that is, with alternate chills and heats; and the symptoms of pyrexia are sometimes sufficiently evident; but in most cases these are very moderate, and in some hardly at all appear. With the first attack of the disease, a cough comes on, usually accompanied with some expectoration; and in many cases, there is a frequent throwing up of a considerable quantity of a viscid opaque mucus. The cough often becomes frequent and violent; is sometimes accompanied with a rending headach; and as in other cases of cough, a vomiting is sometimes excited by it. The face is sometimes flushed; and some giddiness or drowsiness often attends the disease. A difficulty of breathing, with a sense of oppression, or straitening in the chest, with some obscure pains there, and a sense of lassitude over the whole body, very constantly attend this disease. The blood drawn in this disease shows a buffy surface, as in other inflammatory affections.

The disease has often the appearance only of a more violent catarrh, and after the employment of some remedies, is entirely relieved by a free and copious expectoration. In other cases, however, the feverish and catarrhal symptoms are at first very moderate, and even slight; but after a few days these symptoms suddenly become considerable, and put an end to the patient's life when the indications of danger were before very little evident.

CCCLXXX. From the different circumstances in which this disease appears, the pathology of it is difficult. It is certainly often no other at first than a catarrhal affection, which, in elderly persons, is frequently attended with a large afflux of mucus to the lungs; and it was on this footing that Sydenham considered it as only differing in degree from his *Febris hyemalis*. A catarrh, however, is strictly an affection of the mucous membrane and follicles of the bronchiæ alone; but it may readily have, and frequently has, a degree of pneumonic inflammation joined to it; and in that case may prove more properly the peculiar disease we treat of here. But, further, as pneumonic inflammation very often produces an effusion of serum into the bronchiæ (CCCXLVIII.), so this, in elderly persons, may occur in consequence of a slight degree of inflammation; and, when it does happen, will give the exquisite and fatal cases of the peripneumonia notha.

CCCLXXXI. After this attempt to establish the pathology, the method of cure in the different circumstances of the disease will not be difficult.

In case the fever, catarrhal and pneumonic symptoms are immediately considerable, a blood-letting will certainly be proper and necessary; but, where these symptoms are moderate, a blood-letting will hardly be requisite; and, when an effusion is to be feared, the repetition of blood-letting may prove extremely hurtful.

In all cases, the remedies chiefly to be depended upon are vomiting and blistering. Full vomiting may be frequently repeated; and nauseating doses ought to be constantly employed.

Purging may perhaps be useful; but, as it is seldom so in pneumonic affections, nothing but gentle laxatives are here necessary.

In all the circumstances of this disease, the antiphlogistic regimen is proper. Cold is to be guarded against; but much external heat is to be as carefully avoided.

CCCLXXXII. If a person sweats easily, and it can be brought out by the use of mild tepid liquors only, the practice may in such persons be tried. (See *Morgagni De Sed. et Caus.* Epist. xiii. Art. 4.)

CCCLXXXIII. I might here, perhaps, give a separate section on the Carditis and Pericarditis, or the inflammations of the heart and Pericardium; but they hardly require a particular consideration. An acute inflammation of the pericardium is almost always a part of the same pneumonic affection I have been treating of; and is not always distinguished by any different symptoms; or, if it be, does not require any different treatment. The same may be said of an acute inflammation of the heart itself; and when it happens that the one or other is discovered by the symptoms of palpitation or syncope, no more will be implied than that the remedies of pneumonic inflammation should be employed with greater diligence.

From dissections, which show the heart and pericardium affected with erosions, ulcerations, and abscesses, we discover, that these parts had been before affected with inflammation; and that in cases where no symptoms of pneumonic inflammation had appeared: it may therefore be alleged, that those inflammations of the heart and pericardium should be considered as diseases independent of the pneumonic. This indeed is just: but the history of such cases proves, that those inflammations had been of a chronic kind, and hardly discovering themselves by any peculiar symptoms; or, if attended with symptoms marking an affection of the heart, these were, however, such as have been known frequently to arise from other causes than inflammation. There is, therefore, upon the whole, no room for our treating more particularly of the inflammation of the heart or pericardium.

CHAP. VIII.—OF THE GASTRITIS, OR INFLAMMATION OF THE STOMACH.

CCCLXXXIV. Among the inflammations of the abdominal region, I have given a place in our Nosology to the Peritonitis; comprehending under that title, not only the inflammations affecting the peritonæum lining the cavity of the abdomen, but also those affecting the extensions of this membrane in the omentum and mesentery. It is not, however, proposed to treat of them here, because it is very difficult to say by what symptoms they are always to be known; and farther, because when known, they do not require any remedies beside those of inflammation in general. I proceed, therefore, to treat of those inflammations which, affecting viscera of peculiar functions, both give occasion to peculiar symptoms, and require some peculiarities in the method of cure; and I shall begin with the inflammation of the stomach.

CCCLXXXV. The inflammation of the stomach is of two kinds, Phlegmonic, or Erythematic.* The first may be seated in what is called the Nervous coat of the stomach, or in the peritonæum investing it. The second is always seated in the villous coat and cellular texture immediately subjacent.

CCCLXXXVI. The phlegmonic inflammation of the stomach, or what has been commonly treated of under the title of Gastritis, is known by an acute pain in some part of the region of the stomach, attended with pyrexia, with frequent vomiting, especially upon occasion of any thing being taken down into the stomach, and frequently with hickup. The pulse is commonly small and hard; and there is a greater loss of strength in all the functions of the body, than in the case of almost any other inflammation.

CCCLXXXVII. This inflammation may be produced by various causes, as by external contusion; by acrids of various kinds taken into the stomach; frequently by very cold drink taken into it while the body is very warm; and sometimes by over-distention, from the having taken in a large quantity of food of difficult digestion. All these may be considered as external causes; but the disease sometimes arises also from internal causes not so well understood. It may arise from inflammations of the neighbouring parts communicated to the stomach, and is then to be considered as a symptomatic affection only. It may arise also from various acrimonies generated within the body, either in the stomach itself, or in other parts, and poured into the cavity of the stomach. These are causes more directly applied to the stomach; but there are perhaps others originating elsewhere, and affecting the stomach only sympathetically. Such may be supposed to have acted in the case of putrid fevers and exanthematic pyrexia; in which, upon dissection, it has been discovered that the stomach had been affected with inflammation.

CCCLXXXVIII. From the sensibility of the stomach and its communication with the rest of the system, it will be obvious that the inflammation of this organ, by whatever cause produced, may be attended with fatal consequences. In particular, by the great debility which such an inflammation suddenly produces, it may quickly prove fatal, without running the common course of inflammations.

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* This is a new term; but whoever considers what is said in CCLXXIV., will, I expect, perceive the propriety, and even the necessity of it.

When it lasts long enough to follow the ordinary course of other inflammations, it may terminate by resolution, gangrene, or suppuration. The scirrhosities which are often discovered affecting the stomach, are seldom known to be the consequences of inflammation.

"I find what has been observed by most practitioners, that the inflammation of the stomach is attended with a small pulse and a considerable prostration of strength, as in the case of the pyrexia typhodes; and more remarkably than in any other internal inflammation, except in that of some other parts of the alimentary canal: but the occurrence is so rare in practice, that I have not experience enough to enable me to speak positively on the subject."

CCCLXXXIX. The tendency of this disease to admit of resolution, may be known by its having arisen from no violent cause; by the moderate state of the symptoms, and by a gradual remission of these, especially in consequence of remedies employed in the course of the first, or at farthest, the second week of the disease.

CCCXC. The tendency to suppuration may be known by the symptoms continuing, in a moderate degree, for more than one or two weeks; and likewise by a considerable remission of the pain, while a sense of weight and an anxiety still remain.

When an abscess has been formed, the frequency of the pulse is at first abated; but soon after, it is again increased, with frequent cold shiverings, and with marked exacerbations in the afternoon and evening, followed by night-sweatings, and other symptoms of hectic fever. These at length prove fatal, unless the abscess open into the cavity of the stomach, and the pus be evacuated by vomiting, and the ulcer soon heal.

CCCXCI. The tendency to gangrene may be suspected from the violence of the symptoms not yielding to the remedies employed during the first days of the disease; and that a gangrene has already begun, may be known from the sudden remission of the pain, while the frequency of the pulse continues, and at the same time becomes weaker, accompanied with other marks of an increasing debility in the whole system.

CCCXCII. From the dissection of dead bodies it appears, that the stomach very often has been affected with inflammation, when the characteristic symptoms of it (CCCLXXXVI.) had not appeared; and therefore it is very difficult to lay down any general rules for the cure of this disease.

CCCXCIII. It is only in the case of phlegmonic inflammation, as characterized in CCCLXXXVI. that we can advise the cure or resolution to be attempted by large and repeated bleedings employed early in the disease; and we are not to be deterred from these by the smallness of the pulse; for, after bleeding, it commonly becomes fuller and softer. After bleeding, a blister ought to be applied to the region of the stomach; and the cure will be assisted by fomentations of the whole abdomen, as well as by frequent emollient and laxative glysters.

"We have reason to believe that the blister acts as an antispasmodic, and not as an evacuant: there is manifestly a communication between the stomach and the abdominal muscles, and even the outer integuments of the abdomen. In Enteritis, and in common colic, we frequently find the abdominal muscles considerably affected with spasm, and the pains especially felt about the navel, which shows that the spasm, oscillation, or what you please to call it, may be communicated from the coat of the stomach and intestines to the peritonæum, the abdominal muscles, and external integuments: a relaxation, therefore, induced in these parts, contributes greatly to take off the spasm of the internal viscera."

CCCXCIV. In this disease the irritability of the stomach will not admit of any medicines being thrown into it; and if any internal medicines can be supposed necessary, they must be exhibited in glysters. The giving of drink may be tried; but it ought to be of the very mildest kind, and in very small quantities at a time.

CCCXCV. Opiates, in whatever manner exhibited, are very hurtful during the first days of the disease; but when its violence shall have abated, and when the violence of the pain and vomiting recur at intervals only, opiates given in glysters may be cautiously tried, and sometimes have been employed with advantage.

CCCXCVI. A tendency to suppuration, in this disease, is to be obviated by the the means just now proposed. After a certain duration of the disease, it cannot be prevented by any means whatever; and, when actually begun, must be left to nature; the business of the physician being only to avoid all irritation.

CCCXCVII. A tendency to gangrene can be obviated in no other way than by the means suggested in CCCXCIII., employed early in the disease; and, when it does actually supervene, it admits of no remedy.

CCCXCVIII. Erythematic inflammations of the stomach are more frequent than those of the phlegmonic kind. It appears, at least, from dissections, that the stomach has often been affected with inflammation, when neither pain nor pyrexia had before given any notice of it; and such inflammation I apprehend to have been chiefly of the erythematic kind. This species of inflammation also, is especially to be expected from acrimony of any kind thrown into the stomach; and would certainly occur more frequently from such a cause, were not the interior surface of this organ commonly defended by mucus exuding in large quantity from the numerous follicles placed immediately under the villous coat. Upon many occasions, however, the exudation of mucus is prevented, or the liquid poured out is of a less viscid kind, so as to be less fitted to defend the subjacent nerves; and it is in such cases that matters, even of moderate acrimony, may produce an erythematic affection of the stomach.

CCCXCIX. From what has been said, it must appear that an erythematic inflammation of the stomach may frequently occur; but will not always discover itself, as it sometimes takes place without pyrexia, pain, or vomiting.

CCCC. There are cases, however, in which it may be discovered. The affection of the stomach sometimes spreads into the œsophagus, and appears in the pharynx, as well as on the whole internal surface of the mouth. When, therefore, an erythematic inflammation affects the mouth and fauces, and when, at the same time, there shall be in the stomach an unusual sensibility to all acrids, with a frequent vomiting, there can be little doubt of the stomach being affected with the same inflammation that has appeared in the fauces. Even when no inflammation appears in the fauces, yet if some degree of pain be felt in the stomach, if there be a want of appetite, an anxiety, frequent vomiting, an unusual sensibility with respect to acrids, some thirst, and frequency of pulse, there will then be room to suspect an erythematic inflammation of the stomach; and we have known such symptoms, after some time, discover their cause more clearly by the appearance of the inflammation in the fauces or mouth.

Erythematic inflammation is often disposed to spread from one place to another on the same surface; and, in doing so, to leave the place it had first occupied. Thus, such an inflammation has been known to spread successively along the whole course of the alimentary canal, occasioning in the intestines diarrhœa, and in the stomach vomitings; the diarrhœa ceasing when the vomitings come on, or the vomitings upon the coming on of the diarrhœa.

CCCCI. When an erythematic inflammation of the stomach shall be discovered, it is to be treated differently, according to the difference of its causes and symptoms.

When it is owing to acrid matters taken in by the mouth, and when these may be supposed still present in the stomach, they are to be washed out by throwing in a large quantity of warm and mild liquids, and by exciting vomiting. At the same time, if the nature of the acrimony and its proper corrector be known, this should be thrown in; or if a specific corrector be not known, some general demulcents should be employed.

CCCCII. These measures, however, are more suited to prevent the inflammation than to cure it after it has taken place. When this last may be supposed to be the case, if it be attended with a sense of heat, with pain and pyrexia, according to the degree of these symptoms, the measures proposed in CCCXCIII. are to be more or less employed.

CCCCIII. When an erythematic inflammation of the stomach has arisen from internal causes, if pain and pyrexia accompany the disease, some bleeding, in persons not otherwise weakened, may be employed: but, as the affection often arises in putrid diseases, and in convalescents from fever, so, in these cases, bleeding is inadmissible; all that can be done being to avoid irritation, and to throw into the stomach what quantity of acids, and of acescent aliments, it shall be found to bear.

In some conditions of the body, in which this disease arises, the Peruvian bark and bitters may seem to be indicated; but an erythematic state of the stomach does not commonly allow of them.

CHAP. IX.—OF THE ENTERITIS, OR INFLAMMATION OF THE INTESTINES.

CCCCIV. The inflammation of the intestines, like that of the stomach, may be either phlegmonic, or erythematic. But, on the subject of the latter, I have nothing to add to what has been said in the last chapter; and shall here therefore treat of the phlegmonic inflammation only.—"I am not certain that a typhus or nervous fever constantly accompanies enteritis; that would give a different view of the disease, and make it be considered only as symptomatic of fever; but I have, in my definition, employed the words *Pyrexia typhodes,* because the inflammations of the stomach and intestines are always accompanied with a more remarkable loss of strength than any other inflammation, and this is liable to mislead us in practice."

CCCCVI. This inflammation may be known to be present, by a fixed pain of the abdomen, attended with pyrexia, costiveness, and vomiting. Practical writers mention the pain in this case as felt in different parts of the abdomen, according to the different seat of the inflammation; and so, indeed, it sometimes happens; but very often the pain spreads over the whole belly, and is felt more especially about the navel.

CCCCVII. The Enteritis and Gastritis arise from like causes; but the former, more readily than the latter, proceeds from cold applied to the lower extremities, or to the belly itself. The enteritis has likewise its own peculiar causes, as supervening upon the spasmodic colic, incarcerated hernia, and volvulus.

CCCCVIII. Inflammations of the intestines have the same terminations as those of the stomach; and, in both cases, the several tendencies are to be discovered by the same symptoms (CCCLXXXIX.—CCCXCI.).

CCCCIX. The cure of the enteritis is, in general, the same with that of the gastritis (CCCXCIII. *et seq.*); but, in the enteritis, there is commonly more access to the introduction of liquids, of acid, acescent, and other cooling remedies, and even of laxatives. As, however, a vomiting so frequently attends this disease, care must be taken not to excite that vomiting by either the quantity or the quality of any thing thrown into the stomach.

The same observation, with respect to the use of opiates, is to be made here as in the case of gastritis.

CCCCX. Under the title Enteritis, it has been usual with practical writers to treat of the remedies proper for the Colic (MCCCCXXXV), and its higher degree named *Ileus*. But, although it be true that the enteritis and colic do frequently accompany each other, I still hold them to be distinct diseases, to be often occurring separately, and accordingly to require and admit of different remedies. I shall, therefore, delay speaking of the remedies proper for the colic, till I shall come to treat of this disease in its proper place.

CCCCXI. What might be mentioned with respect to the suppuration or gangrene occurring in the enteritis, may be sufficiently understood from what has been said on the same subject with respect to the gastritis.

CHAP. X.—OF THE HEPATITIS, OR INFLAMMATION OF THE LIVER.

"I have found it extremely difficult to form a character of this disease, which would apply to all the variety of cases which may occur. Scarcely any of the characters given, when taken separately, are decisive and determinate, and they must be taken together in combination. The 'hypochondrii dextri tensio et dolor' are the most certain symptoms of hepatitis; but there is a fallacy here in two respects. The first is, that the liver may extend even into the left side of the hypochondrium; and if that portion is affected, we may be mistaken, if we judge merely from the seat. And even the pain in the right hypochondrium may arise from an affection of the stomach or colon, these being contiguous to the liver. Even the pain, 'sæpe pungens et obtusus,' will not give a much more certain determination; for when the membrane of the peritonæum, extended over the contiguous surface of the liver, is the part affected, it exactly resembles the pleurisy; for it is attended with cough and difficulty of breathing. I knew a person who had several times been treated for a pleurisy; he died of another disease; and, upon opening the body, no adhesion was found in the pleura, but a portion of the liver was strongly attached to the peritonæum, with marks of former inflammation."

CCCCXII. The inflammation of the liver seems to be of two kinds; the one acute, the other chronic.

CCCCXIII. The acute is attended with pungent pain; considerable pyrexia; a frequent, strong, and hard pulse; and high-coloured urine.

CCCCXIV. The chronic hepatitis very often does not exhibit any of these symptoms; and it is only discovered to have happened, by our finding in the liver, upon dissection, large abscesses, which were presumed to be the effect of some degree of previous inflammation. As this chronic inflammation is seldom to be certainly known, and therefore does not lead to any determined practice, we omit treating of it here, and shall only treat of what relates to the acute species of the hepatitis.

CCCCXV. The acute hepatitis may be known by a pain more or less acute in the right hypochondrium, increased by pressing upon the part. The pain is very often in such a part of the side as to make it appear like that of a pleurisy; and frequently, like that, too, is increased on respiration. The disease is, in some instances, also attended with a cough, which is commonly dry, but sometimes humid; and, when the pain thus resembles that of a pleurisy, the patient cannot lie easily except upon the side affected.

In every kind of acute hepatitis, the pain is often extended to the clavicle, and to the top of the shoulder. The disease is attended sometimes with hickup, and sometimes with vomiting. Many practical writers have mentioned the jaundice, or a yellow colour of the skin and eyes, as a very constant symptom of the hepatitis; but experience has shown, that it may often occur without any such symptom.

"Icterus has been commonly mentioned, by practical writers, as a symptom of hepatitis, and it may be bold indeed to reject it. But that opinion has proceeded upon this, that hepatitis is very frequently symptomatic of a remittent fever; and we know that in warm climates these fevers seldom take place without more or less affecting the liver: but it is not owing to this, but to another effect of the disease that they induce a yellow colour of the skin."

CCCCXVI. The remote causes of hepatitis are not always to be discerned, and many have been assigned on a very uncertain foundation. The following seem to be frequently evident. 1. External violence from contusions or falls, and especially those which have occasioned a fracture of the cranium. 2. Certain passions of the mind. 3. Violent summer heats. 4. Violent exercise. 5. Intermittent and remittent fevers. 6. Cold applied externally, or internally; and therefore, in many cases, the same causes which produce pneumonic inflammation, produce hepatitis, and whence also the two diseases are sometimes joined together. 7. Various solid concretions or collections of liquid matter, in the substance of the liver, produced by unknown causes. Lastly, The acute is often induced by a chronic inflammation of this viscus.

CCCCXVII. It has been supposed that the hepatitis may be an affection either of the extremities of the hepatic artery, or of those of the vena portarum; but of the last supposition there is neither evidence nor probability.

CCCCXVIII. It seems probable, that the acute hepatitis is always an affection of the external membrane of the liver; and that the parenchymatic is of the chronic kind. The acute disease may be seated either on the convex or on the concave surface of the liver. In the former case, a more pungent pain and hickup may be produced, and the respiration is more considerably affected. In the latter, there occurs less pain, and a vomiting is produced, commonly by some inflammation communicated to the stomach. The inflammation of the concave surface of the liver may be readily communicated to the gall-bladder and biliary ducts; and this perhaps is the only case of idiopathic hepatitis attended with jaundice.

"A distinction has been made of parenchymatous and membranous inflammation of the liver; but I say the last is the principal. We may here, as well as in the case of the lungs (see CCCXXXIV.), suppose the two different cases: but, besides the difficulties which I there stated, we have here a proof of the argument which I employed: I said, that in cases of apparent parenchymatous inflammation, where, upon dissection, an abscess or collection of pus appeared in the liver, in ninety-nine cases out of an hundred, there were no previous marks of inflammation; and I believe such to have been chronic cases in consequence of some congestion, some effusion which irritated and produced an obscure inflammation in the neighbouring parts, attended with purulency. I should say, therefore, that parenchymatous inflammation of the liver is not in any case the object of our practice as a primary inflammation."

CCCCXIX. The hepatitis, like other inflammations, may end by resolution, suppuration, or gangrene; and the tendency to the one or the other of these events may be known from what has been delivered above.

CCCCXX. The resolution of hepatitis is often the consequence of, or is attended with, evacuations of different kinds. A hæmorrhagy, sometimes from the right nostril, and sometimes from the hæmorrhoidal vessels, gives a solution of the disease. Sometimes a bilious diarrhœa contributes to the same event; and the resolution of the hepatitis, as of other inflammations, is attended with sweating, and with an evacuation of urine depositing a copious sediment. Can this disease be resolved by expectoration? It would seem to be sometimes cured by an erysipelas appearing in some external part.

CCCCXXI. When this disease has ended in suppuration, the pus collected may be discharged by the biliary ducts; or, if the suppurated part does not any where adhere closely to the neighbouring parts, the pus may be discharged into the cavity of the abdomen; but if, during the first state of inflammation, the affected part of the liver shall have formed a close adhesion to some of the neighbouring parts, the discharge of the pus after suppuration may be various, according to the different seat of the abscess. When seated on the convex part of the liver, if the adhesion be to the peritonæum lining the common teguments, the pus may make its way through these, and be discharged outwardly: or, if the adhesion should have been to the diaphragm, the pus may penetrate through this, and into the cavity of the thorax, or of the lungs; and through the latter may be discharged by coughing. When the abscess of the liver is seated on its concave part, then, in consequence of adhesions, the pus may be discharged into the stomach or the intestines; and into these last, either directly, or by the intervention of the biliary ducts.

CCCCXXII. The prognostics in this disease are established upon the general principles relating to inflammation, upon the particular circumstances of the liver, and upon the particular state of its inflammation.

The cure of this disease must proceed upon the general plan; by bleeding, more or less, according to the urgency of pain and pyrexia; by the application of blisters; by fomentations of the external parts in the usual manner, and of the internal parts by frequent emollient glysters; by frequently opening the belly by means of gentle laxatives; and by diluent and refrigerant remedies.

CCCCXXIII. Although, in many cases, the chronic hepatitis does not clearly discover itself; yet, upon many occasions, it may perhaps be discovered, or at least suspected, from those causes which might affect the liver (CCCXVI.) having been applied; from some fulness and some sense of weight in the right hypochondrium; from some shooting pains at times felt in that region; from some uneasiness or pain felt upon pressure in that part; from some uneasiness from lying upon the left side; and, lastly, from some degree of pyrexia, combined with more or fewer of these symptoms.

When from some of these circumstances a chronic inflammation is to be suspected, it is to be treated by the same remedies as in the last paragraph, employed more or less, as the degree of the several symptoms shall more distinctly indicate.

CCCCXXIV. When from either kind of inflammation a suppuration of the liver has been formed, and the abscess points outwardly, the part must be opened, the pus evacuated, and the ulcer healed, according to the ordinary rules for cleansing and healing such abscesses and ulcers.

CCCCXXV. I might here consider the Splenitis, or inflammation of the spleen; but it does not seem necessary, because the disease very seldom occurs. When it does, it may be readily known by the character given in our Nosology; and its various termination, as well as the practice which it requires, may be understood from what has been already said with respect to the inflammations of the other abdominal viscera.

CHAP. XI.—OF THE NEPHRITIS, OR THE INFLAMMATION OF THE KIDNEYS.

CCCCXXVI. This disease, like other internal inflammations, is always attended with pyrexia; and is especially known from the region of the kidney being affected by pain, commonly obtuse, sometimes pungent. This pain is not increased by the motion of the trunk of the body, so much as a pain of the rheumatic kind affecting the same region. The pain of the nephritis may be often distinguished by its shooting along the course of the ureter; and is frequently attended with a drawing up of the testicle, and with a numbness of the limb on the side affected; although, indeed, these symptoms most commonly accompany the inflammation arising from a calculus in the kidney or in the ureter. The nephritis is almost constantly attended with frequent vomiting, and often with costiveness and colic pains. Usually the state of the urine is changed; it is most commonly of a deep red colour, is voided frequently, and in small quantity at a time. In more violent cases, the urine is sometimes colourless.

CCCCXXVII. The remote causes of this disease may be various; as external contusion; violent or long continued riding; strains of the muscles of the back incumbent on the kidneys; various acrids in the course of the circulation conveyed to the kidneys; and perhaps some other internal causes not yet well known. The most frequent is that of calculous matter obstructing the tubuli uriniferi, or calculi formed in the pelvis of the kidneys, and either sticking there, or falling into the ureter.

CCCCXXVIII. The various event of this disease may be understood from what has been delivered on the subject of other inflammations.

CCCCXXIX. Writers, in treating of the cure of nephritis, have commonly at the same time treated of the cure of the Calculus renalis. But, though this may often produce nephritis, it is to be considered as a distinct and separate disease; and what I have to offer as to the mode of treating it, must be reserved to its proper place. Here I shall treat only of the cure of the Nephritis vera or idiopathica.

CCCCXXX. The cure of this proceeds upon the general plan, by bleeding, external fomentation, frequent emollient glysters, antiphlogistic purgatives, and the free use of mild and demulcent liquids. The application of blisters is hardly admissible; or, at least, will require great care, to avoid any considerable absorption of the cantharides.

CCCCXXXI. The Cystitis, or inflammation of the bladder, is seldom a primary disease; and therefore is not to be treated of here. The treatment of it, so far as necessary to be explained, may be readily understood from what has been already delivered.

"Blistering, a most useful remedy in most abdominal and thoracic inflammations, cannot however be employed in the case of Nephritis, and much less in Cystitis; and for this obvious reason, Cantharides are in consequence of almost every external application, carried to the urinary passages, and frequently produce an irritation and a considerable inflammation of the bladder. When these passages therefore are affected with inflammation, we ought not to risk the additional irritation."

CCCCXXXII. Of the visceral inflammations, there remains to be considered the inflammation of the uterus: but I omit it here, because the consideration of it cannot be separated from that of the diseases of child-bearing women.

"To distinguish this inflammation is sometimes difficult: It frequently lays the foundation of child-bed fever; but these fevers are not constantly of the inflammatory kind, they are often nervous, and perhaps miliary, neither of which admit of venesection; and nothing but necessity will prescribe venesection for lying-in-women, when we consider the evacuation which they have already suffered. If the pain, however, depends on an inflammatory affection of the uterus, only venesection affords relief; it is therefore necessary to attend to its particular symptoms here. It is often not very considerable: accordingly, the more distinct marks of pungent pain in the region of the uterus, do not always occur; we know it commonly from an obscure pain, from a tension communicated to the hypogastrium and abdomen, and a hardness of the pulse; the uterus cannot bear the touch but with great pain."

CHAP. XII.—OF THE RHEUMATISM.

CCCCXXXIII. Of this disease there are two species, the one named the Acute, the other the Chronic Rheumatism.

CCCCXXXIV. It is the acute rheumatism which especially belongs to this place, as from its causes, symptoms, and methods of cure, it will appear to be a species of phlegmasia or inflammation.

CCCCXXXV. This disease is frequent in cold, and more uncommon in warm climates. It appears most frequently in autumn and spring, less frequently in winter when the cold is considerable and constant, and very seldom during the heat of summer.

CCCCXXXVI. The acute rheumatism generally arises from the application of cold to the body when any way unusually warm; or when one part of the body is exposed to cold whilst the other parts are kept warm; or lastly, when the application of cold is long continued, as it is when wet or moist clothes are applied to any part of the body.

CCCCXXXVII. These causes may affect persons of all ages; but the rheumatism seldom appears in either very young or in elderly persons, and most commonly occurs from the age of puberty to that of thirty-five years.

CCCCXXXVIII. These causes (CCCCXXXVI.) may also affect persons of any constitution, but they most commonly affect those of a sanguine temperament.

CCCCXXXIX. This disease is particularly distinguished by pains affecting the joints, for the most part the joints alone, but sometimes affecting also the muscular parts. Very often the pains shoot along the course of the muscles, from one joint to another, and are always much increased by the action of the muscles belonging to the joint or joints affected.

CCCCXL. The larger joints are most frequently affected, such as the hip-joint and knees of the lower, and the shoulders and elbows of the upper extremities. The ankles and wrists are also frequently affected, but the smaller joints, such as those of the toes or fingers, seldom suffer.

CCCCXLI. This disease, although sometimes confined to one part of the body only, yet very often affects many parts of it; and then it comes on with a cold stage, which is immediately succeeded by the other symptoms of pyrexia, and particularly by a frequent, full, and hard pulse. Sometimes the pyrexia is formed before any pains are perceived, but more commonly pains are felt in particular parts before any symptoms of pyrexia appear.

"In cases of rheumatic pains, it is a question that often occurs to be determined, whether we are to consider the primary disease as fever or as rheumatism, for it makes some difference in our conduct; and it is to be determined in this manner: When the febrile symptoms, the headach, anxiety, debility, anorexia, nausea, are present in a great degree, and when the pains are more general, and not so much in particular joints, as shifting from one joint to another, and not attended with swelling, we judge that an idiopathic fever is present. On the contrary, we judge the disease to be more purely rheumatic when these febrile symptoms are in a great measure absent; when the pains are more fixed on particular joints at one time, though they may shift their place; and when in these joints it is attended with swelling."

CCCCXLII. When no pyrexia is present, the pain is sometimes confined to one joint only; but when any considerable pyrexia is present, although the pain may be chiefly in one joint, yet it seldom happens but that the pains affect several joints often at the very same time, but for the most part shifting their place, and, having abated in one joint, become more violent in another. They do not commonly remain long in the same joint, but frequently shift from one to another, and sometimes return to joints formerly affected; and in this manner the disease often continues for a long time.

CCCCXLIII. The pyrexia attending this disease has an exacerbation every evening, and is most considerable during the night, when the pains also become more violent; and it is at the same time that the pains shift their place from one joint to another. The pains seem to be also increased during the night, by the body being covered more closely and kept warmer.

CCCCXLIV. A joint, after having been for some time affected with pain, commonly becomes affected also with some redness and swelling, which is painful to the touch. It seldom happens, that a swelling coming on, does not alleviate the pain of the joint; but the swelling does not always take off the pain entirely, nor secure the joint against a return of it.

CCCCXLV. This disease is commonly attended with some sweating, which occurs early in the course of the disease; but it is seldom free or copious, and seldom either relieves the pains or proves critical.

CCCCXLVI. In the course of this disease, the urine is high coloured, and in the beginning without sediment; but as the disease advances, and the pyrexia has more considerable remissions, the urine deposites a lateritious sediment. This, however, does not prove entirely critical; for the disease often continues long after such a sediment has appeared in the urine.

CCCCXLVII. When blood is drawn in this disease, it always exhibits the appearance mentioned in CCXXXVII.

CCCCXLVIII. The acute rheumatism, though it has so much of the nature of the other phlegmasiæ, differs from all those hitherto mentioned, in this, that it is not apt to terminate in suppuration. This almost never happens in rheumatism; but the disease sometimes produces effusions of a transparent gelatinous fluid into the sheaths of the tendons. If we may be allowed to suppose that such effusions are frequent, it must also happen, that the effused fluid is commonly reabsorbed; for it has seldom happened, and never indeed to my observation, that considerable or permanent tumours have been produced, or such as required to be opened, and to have the contained fluid evacuated. Such tumours, however, have occurred to others, and the opening made in them has produced ulcers difficult to heal. —(*Vide Storck. Ann. Med. II.*)

CCCCXLIX. With the circumstances mentioned from

CCCCXXXIX. to CCCCXLVIII. the disease often continues for several weeks. It seldom, however, proves fatal; and it rarely happens that the pyrexia continues to be considerable for more than two or three weeks. While the pyrexia abates in its violence, if the pains of the joints continue, they are less violent, more limited in their place, being confined commonly to one or a few joints only, and are less ready to change their place.

CCCCL. When the pyrexia attending rheumatism has entirely ceased; when the swelling, and particularly the redness of the joints, are entirely gone; but when pains still continue to affect certain joints, which remain stiff, which feel uneasy upon motion, or upon changes of weather, the disease is named the Chronic Rheumatism, as it very often continues for a long time. As the chronic is commonly the sequel of the acute rheumatism, I think it proper to treat of the former also in this place.

CCCCLI. The limits between the acute and chronic rheumatism are not always exactly marked.

When the pains are still ready to shift their place, when they are especially severe in the night time, when, at the same time, they are attended with some degree of pyrexia, and with some swelling, and especially with some redness of the joints, the disease is to be considered as still partaking the nature of the acute rheumatism.

But, when there is no degree of pyrexia remaining, when the pained joints are without redness, when they are cold and stiff, when they cannot easily be made to sweat, or when, while a free and warm sweat is brought out on the body, it is only clammy and cold on the pained joints; and when, especially, the pains of these joints are increased by cold, and relieved by heat applied to them, the case is to be considered as that of a purely chronic rheumatism.

CCCCLII. The chronic rheumatism may affect different joints; but is especially ready to affect those joints which are surrounded with many muscles, and those of which the muscles are employed in the most constant and vigorous exertions. Such is the case of the vertebræ of the loins, the affection of which is named Lumbago; or that of the hip-joint, when the disease is named Ischias or Sciatica.

“ The partial rheumatism is most frequent in the hip-joint, and there also the most violent and obstinate. The reason seems to be, that it is a joint exercised most frequently and with most force. This is not always the case, but most commonly so; and if another joint is more frequently exercised, it becomes more liable to rheumatism. The disease is more violent also in the hip-joint from the number of muscles, as it is communicated from one to another. Next to the hip, the shoulder is most frequently affected, which confirms all this."

CCCCLIII. Violent strains and spasms occurring on sudden and somewhat violent exertions, bring on rheumatic affections, which at first partake of the acute, but very soon change into the nature of the chronic rheumatism.

CCCCLIV. I have thus delivered the history of rheumatism; and suppose, that, from what has been said, the remote causes, the diagnosis, and prognosis of the disease, may be understood. The distinction of the rheumatic pains from those resembling them, which occur in the syphilis and scurvy, will be obvious, either from the seat of those pains, or from the concomitant symptoms peculiar to these diseases. The distinction of rheumatism from gout will be more fully understood, from what is to be delivered in the following chapter.

"The scorbutic pains may be distinguished by the marks of a scorbutic acrimony in the body at the same time, as lassitude, fœtid breath, bleeding gums, livid blotches, vibices, &c. or the patients having been long exposed to the causes known to induce scurvy, as animal food ill-cured, want of vegetables: or even if the pains have come on after scurvy has been cured, without any cause, which commonly occasions rheumatism, we may attribute it to the remains of that first-mentioned cause.

"In order to distinguish venereal pains from rheumatism, we may take notice, that in the former the bones are chiefly affected in the middle, and not painful on handling. And though sometimes it may be found that joints and muscles are affected with pain from this cause; yet, as in the case of scurvy, if venereal symptoms have preceded or attended, we may be sure of the pox being the cause of these pains."

CCCCLV. With respect to the proximate cause of rheumatism, there have been various opinions. It has been imputed to a peculiar acrimony; of which, however, in ordinary cases, I can find no evidence; and, from the consideration of the remote causes, the symptoms, and cure of the disease, I think the supposition very improbable.

The cause of an Ischias Nervosa assigned by Cotunnius, appears to me hypothetical, and is not supported by either the phenomena or method of cure. That, however, a disease of a rheumatic nature may be occasioned by an acrid matter applied to the nerves, is evident from the toothach, a rheumatic affection generally arising from a carious tooth.

That pains resembling those of rheumatism may arise from deep-seated suppurations, we know from some cases depending on such a cause, and which, in their symptoms, resemble the lumbago or ischias. I believe, however, that, by a proper attention, these cases depending on suppuration, may be commonly distinguished from the genuine cases of lumbago and ischias; and from what is said in CCCCXLVIII. I judge it to be at least improbable, that a genuine lumbago or ischias does ever end in suppuration.

CCCCLVI. The proximate cause of rheumatism has been by many supposed to be a lentor of the fluids obstructing the vessels of the part; but the same consideration as in CCXLI. 1. 2. 3. 4. and 5. will apply equally here for rejecting the supposition of a lentor.

CCCCLVII. While I cannot, therefore, find either evidence or reason for supposing that the rheumatism depends upon any change in the state of the fluids, I must conclude, that the proximate cause of acute rheumatism is commonly the same with that of other inflammations not depending upon a direct stimulus.

CCCCLVIII. In the case of rheumatism, I suppose that the most common remote cause of it, that is cold applied, operates especially on the vessels of the joints, from these being less covered by a cellular texture than those of the intermediate parts of the limbs. I suppose further, that the application of cold produces a constriction of the extreme vessels on the surface, and at the same time an increase of tone or phlogistic diathesis in the course of them, from which arises an increased impetus of the blood, and, at the same time, a resistance to the free passage of it, and consequently inflammation and pain. Further, I suppose, that the resistance formed excites the vis medicatrix to a further increase of the impetus of the blood; and, to support this, a cold stage arises, a spasm is formed, and a pyrexia and phlogistic diathesis are produced in the whole system.

CCCCLIX. According to this explanation, the cause of acute rheumatism appears to be exactly analogous to that of the inflammations depending on an increased afflux of blood to a part while it is exposed to the action of cold.

But there seems to be also, in the case of rheumatism, a peculiar affection of the fibres of the muscles. These fibres seem to be under some degree of rigidity, and therefore less easily admit of motion; and are pained upon the exertions of it.

It is also an affection of these fibres which gives an opportunity to the propagation of pains from one joint to another, along the course of the muscles; and which pains are more severely felt in the extremities of the muscles terminating in the joints, because beyond these the oscillations are not propagated.

This affection of the muscular fibres attending rheumatism, seems to explain why strains and spasms produce rheumatic affections; and, upon the whole, shows, that, with an inflammatory affection of the sanguiferous system, there is also in rheumatism a peculiar affection of the muscular fibres, which has a considerable share in producing the phenomena of the disease.

CCCCLX. Having thus given my opinion of the proximate cause of rheumatism, I proceed to treat of the cure.

CCCCLXI. Whatever difficulty may occur with respect to the explanation given, CCCCLVIII. and CCCCLIX., this remains certain, that, in acute rheumatism, at least in all those cases which do not arise from direct stimuli, there is an inflammatory affection of the parts, and a phlogistic diathesis in the whole system; and upon these is founded the method of cure which frequent experience has approved of.

CCCCLXII. The cure therefore requires, in the first place, an antiphlogistic regimen, and particularly a total abstinence from animal food, and from all fermented or spirituous liquors; substituting a vegetable or milk diet, and the plentiful use of bland diluent drinks.

CCCCLXIII. Upon the same principle (CCCCLXII.), at least with perhaps the same exception as above, blood-letting is the chief remedy of acute rheumatism. The blood ought to be drawn in large quantity, and the bleeding is to be repeated in proportion to the frequency, fullness, and hardness of the pulse, and to the violence of the pain. For the most part, large and repeated bleedings, during the first days of the disease, seem to be necessary, and accordingly have been very much employed: but to this some bounds are to be set; for very profuse bleedings occasion a slow recovery, and, if not absolutely effectual, are ready to produce a chronic rheumatism.

“ Sir John Pringle is one of those who inculcate plentiful venesection; and he adds, that it is found, that persons, not only from their constitution and time of life, but merely from their being attacked with this disease, will bear bleeding to a greater degree than in any other case. The observation is certainly just, that while the body is under the phlogistic diathesis, while there is an extraordinary tension and tone induced in the whole arterial system, it will bear very large bleedings without immediately showing any of the effects of great debility; but there is a fallacy in this: when we have overcome the disease and taken away the tone, the debility is remarkable. Then we find Dr. Sydenham's observation just, where he argues the danger from excessive venesection: He considered the disease as autumnal; and I have observed, as he has done, that the patients did not recover their strength during the whole course of winter; that they were not only liable to relapses, but to other diseases, and to anasarca, the most certain proof of excessive venesection. I imagine that the disease is not by any means to be overcome without taking a certain quantity of blood; but I would inculcate Dr Sydenham's method, of finding some method of shortening the disease if possible without the great expense of bleeding. Dr Sydenham, in his practice, set out with curing rheumatism by bleeding, which he practised pretty freely; but he thought that this, upon many occasions, had bad consequences, which he points out; and, therefore, he wished to find another remedy which might be substituted without that expense to the constitution: he finds none, and recommends nothing more than an extremely low diet of whey alone; and gives particular instances of the cure of obstinate cases by these means. I seldom find that the impatience of our patients will allow us to proceed in this way, except in a very few instances. Every day's experience, however, shews that we can hardly take down the diet too much in the case of rheumatism, and that, without this, scarcely any bleeding or any other evacuation will answer the purpose. Huxham approves of a spare use of this evacuation; and the French (though we at first seem to have learned the practice of large bleeding from them) are of the same mind. Thus, Lieutaud approves of little bleeding, and adduces the experience of Marquet, who, having at first practised profuse phlebotomy, found that it protracted the complaints of the patients for years; and that, by becoming afterwards more sparing, he had often cured the disease in eight or ten days.

"To give my opinion on this matter, though I allow that blood is very easily repaired, (a common argument adduced by the advocates for the copious use of phlebotomy,) yet in some cases I have seen that even this was the case when much blood-letting and hæmorrhagy were joined, and that it induced weakness of tedious and dangerous consequences; so that I can confirm M. Marquet's observations, by observing that I have seen, by such a practice, the acute converted into the chronic rheumatism, which is a kind of torpor, or even almost palsy. For this reason I would recommend bleeding, not in such quantity as to weaken the system, but only to remove the irritation."

CCCCLXIV. To avoid that debility of the system, which general bleedings are ready to occasion, the urgent symptom of pain may be often relieved by topical bleedings; and especially when any swelling and redness have come upon a joint, the pain of it may be very certainly relieved by such bleedings; but as the continuance of the disease seems to depend more upon the phlogistic diathesis of the whole system than upon the affection of particular parts, so topical bleedings will not always supply the place of the general bleedings proposed above.

"I was formerly fond of using much topical bleeding, and I have had much occasion to see that it almost constantly relieves the pain of the part in which it is practised, with this condition, which Sir John Pringle remarks, that the part is previously affected with swelling. But it goes no farther than relieving the part; for when the general diathesis prevails, the pain may be found next night in the next joint; thus I have tried to follow it from joint to joint, but after taking great pains, I found that general bleeding was necessary to cure the diathesis. Topical bleedings will go but a short way to the cure of the disease, but they have their place; all the quantity evacuated will hardly do harm, and they may be employed to give relief to the exquisite acute pains, particularly where these are obstinately fixed to one part and in danger of becoming chronic, and where at the same time the general diathesis is removed by general venesection."

CCCCLXV. To take off the phlogistic diathesis prevailing in this disease, purging may be useful, if procured by medicines which do not stimulate the whole system, such as the neutral salts, and which have in some measure a refrigerant power. Purging, however, is not so powerful as bleeding in removing phlogistic diathesis; and when the disease has become general and violent, frequent stools are inconvenient, and even hurtful, by the motion and pain which they occasion.

" For myself, I do not find by observation, that cathartics have any efficacy here. But as costiveness is an attendant on rheumatism, and stimulates the whole system, I would keep the belly soluble by the use of laxative glysters."

CCCCLXVI. In acute rheumatism, applications to the pained parts are of little service. Fomentations, in the beginning of the disease, rather aggravate than relieve the pains. The rubefacients and camphor are more effectual in relieving the pains, but generally they only shift the pain from one part into another, and do little towards the cure of the general affection. Blistering, applied to the pained part, may also be very effectual in removing the pain from it, but will be of little use except where the pains are much confined to one part.

CCCCLXVII. The several remedies mentioned from CCCCLXI. to CCCCLXV., moderate the violence of the disease, and sometimes remove it entirely; but they sometimes fail in this, and leave the cure imperfect. The attempting a cure by large and repeated bleedings, is attended with many inconveniences (See CXL.); and the most effectual and safe method of curing this disease is, after some general bleedings for taking off, or at least diminishing the phlogistic diathesis, to employ sweating conducted by the rules laid down, CLXVIII. and CLXIX.

"Before the time of Sydenham, immediately preceded the age of Alexipharmics and Sudorifics; and there is no doubt that sweating was then employed in rheumatism; but since that period it has been abstained from; and only very lately Dr. Clerk of Edinburgh imagined that rheumatism could be cured by sweating; but nobody ventured to imitate him in this practice, till we learned of Dover's Powder, with which he was not acquainted, and which has this advantage that we can produce sweat by it with much less heat than is otherwise necessary. Nothing is better known in the history of physic than that opiates have been found the most effectual sudorifics; and even in theory this is sufficiently probable, as opium acts as a stimulant in exciting the heart and arteries, yet is combined with a sedative power, which relaxes the system, and operates more upon the extreme vessels, whereby we practise sweating with more ease and less impetus than would otherwise be necessary. To secure the effects of opium in that way, we may find advantage from combining it with neutral salts and emetics, both of which, we know, act on the extreme vessels, and determine the operation of the opium in that way."

In this, Ipecacuanha has been constantly employed: it has been supposed to have a specific power of diminishing the power of opium, as in Dover's Powder larger doses of opium can be employed than would be proper in the use of opium alone. This opinion, however, we cannot admit of, as we suppose that the large doses of opium which are given in Dover's Powder, become safe only because by the other ingredients it is directed to sweat. This we take to be the effect of the Ipecacuanha, not by any specific, but by its emetic power, for we can obtain the same effect by antimonial emetics.

In what time of the disease may this remedy be administered? May we set out with this practice from the beginning, before the general diathesis is in some measure overcome by venesection and the other remedies? I am clearly of opinion that this very effectual remedy cannot be prosecuted till the general diathesis is more or less diminished by a certain quantity of blood drawn; but I must own that the more hardy practice of others, and frequent experience, have shown, contrary to my fears, that the medicine may be administered while a considerable fever still accompanies the disease; and it would appear that by this remedy we can effect a cure with less venesection than is otherwise necessary. Notwithstanding what I said in favour of venesection, I must own that I never saw a cure very quickly expedited by venesection alone, in the cure of any violent case of the disease; for the disease is liable to linger, and continue for a long time, and to pass into a chronic state. The Dover's Powder gives us an opportunity of more effectually and more safely curing the disease than by bleeding alone.

We have only to add, that wherever the Dover's Powder is to be employed, the effects and benefits of it will depend very much upon a proper administration, which we have very often observed to be neglected or mistaken; and therefore we subjoin here what I have learned from much experience to be the most proper management of it.

The powder is to be given in the morning when the ordinary sleep or the time of it is over; sleeping is not incompatible with, but is commonly not favourable to sweating.

For security against cold, the patient is to be laid in woollen, that is, in a flannel shirt and in blankets, the bed linen being entirely removed.

The powder will be taken most properly by being made into a bolus with a little syrup, and swallowed in a wafer, that the taste of it may not occasion any squeamishness.

The covering of the body may be only what the person has been used to sleep in; but commonly it will be convenient to make some addition over the whole body, and always some considerable addition upon the feet and legs.

As the powder is ready to be thrown up by vomiting, no drink should be taken into the stomach till some sweat breaks out.

When the sweat begins to break out, the person may then take frequently, but at first in small portions, some warm liquid, such as thin gruel, weak sage, bohea tea; and of such drinks he should take frequently during the course of the sweating.

When the sweat breaks out, if it does not extend freely to the legs and feet, some additional covering should be laid over these parts, or boiled bricks, or bottles filled with warm water, applied to the soles of his feet; for it is always proper to render the sweating thus universal.

As the sweat should be carried on with as little heat and uneasiness to the person as possible, if he finds himself very warm and restless the additional covering that was put upon the body, and even a part put upon the feet and legs, may be gradually removed.

If the person bears the sweating easily, it is of much consequence to continue it for some length of time, and always, if possible, for twelve hours; then it will be allowable to let it cease, by drying the body very well with warm towels, and shifting the body into dry flannels and blankets, and allowing him afterwards to put out his hands, and perhaps his arms, from under the bed-clothes; but he should continue in flannels and blankets till next morning.

During the sweating, instead of the drinks above mentioned, he may take frequently a weak soup, as chicken broth, or what we call beef-tea; and at his ordinary time of meals, he may take some dry toast with these broths; or if the sweat does not proceed freely, and it is at the same time not attended with much warmth, he may, instead of the drinks mentioned, take frequently weak negus, or white wine whey.

In the morning after this sweating, the person may come out of bed, and put on his linen, and other parts of his ordinary dress, but should keep his chamber, or at least within doors, for the whole day after; and even for a day or two after that he should be very careful in avoiding his being exposed to cold.

By this administration I have found the Dover's powder a highly useful remedy.—*M. M.*

CCCCLXVIII. Opiates, except where they are directed to procure sweat, always prove hurtful in every stage of this disease.

CCCCLXIX. The Peruvian bark has been supposed a remedy in some cases of this disease; but we have seldom found it useful, and, in some cases, hurtful. It appears to me to be fit in those cases only, in which the phlogistic diathesis is already much abated; and where, at the same time, the exacerbations of the disease are manifestly periodical, with considerable remissions interposed.

"As I consider this disease as essentially consisting in a phlogistic diathesis, I hold the bark to be absolutely improper, and have found it manifestly hurtful, especially in its beginning, and in its truly inflammatory state.

But it is possible that after rheumatism has continued for some time, and especially after the use of antiphlogistic remedies and sweating, the inflammatory state may be abated, and the disease, in consequence, admit of considerable remissions, and become a periodical disease. The bark, in such cases, may prove a proper remedy; and I have sometimes found it to be so, but it requires some caution; for, in some instances, where even a remission was evident, and appeared particularly by a copious sediment in the morning's urine, I have exhibited the bark with a bad effect, as the exacerbations became more violent, and the remissions less considerable; in so much, that I was obliged to have recourse again to antiphlogistic remedies and sweating.

In another case of acute rheumatism the bark may prove a remedy; and that is, when the rheumatism is combined with, and makes part of an intermittent fever, as that and other phlegmasia may sometimes be; and here the conduct may be the same as I have already said to be proper in such cases.

I know of no other cases of acute rheumatism in which the bark may be employed; but there are certain circumstances of the human body, in which pains of the joints resembling rheumatism may occur, and in which perhaps the bark may be useful. So far, however, as I know such cases, they are without any phlogistic diathesis, and therefore not properly acute rheumatism. I have met with some cases of hysteric women, troubled with pains and tumours of the joints, so much resembling rheumatism, that I have thought it necessary to try blood-letting; but though the blood was drawn in the manner most proper to shew an inflammatory crust, yet no such crust in any degree appeared; and therefore such cases do not exclude the use of the bark.—*M.M.*

CCCCLXX. Calomel, and some other preparations of mercury, have been recommended in the acute rheumatism; but I believe they are useful only in cases of the chronic kind, or at least in cases approaching to the nature of these.

CCCCLXXI. Having now treated fully of the cure of the acute rheumatism, I proceed to treat of the cure of the chronic, which is so frequently a sequel of the former.

"The character which I have given in general of rheumatism will not apply here: there is no pyrexia, no inflammation of the particular joints: on this and other occasions an imperfection attends Nosology, for what we may consider as the same disease, or very nearly so, appears in such various shapes as to elude any general character.

"In most instances, the parts affected with chronic rheumatism feel almost constantly cold to the patient and bystanders; and when we endeavour, as we sometimes do, to cure the disease by sweating, we frequently find, that when we can excite a free sweat in every other part of the body, the affected joint remains still cold and dry; these parts are made to sweat with more difficulty, and not without particular applications to them; yet after all, only a cold sweat is commonly produced on the part, while the other parts are flowing with the warm one."

CCCCLXXII. The phenomena of the purely chronic rheumatism, mentioned in CCCCXXXIX. and CCCCXL. lead me to conclude, that its proximate cause is an atony, both of the blood-vessels and of the muscular fibres of the part affected, together with a degree of rigidity and contraction in the latter, such as frequently attend them in a state of atony.

"It remains to shew, why that contracted state or rigidity is pained by the slightest distention caused by the increased afflux of blood to the part.

"This does not seem very difficult. When parts have a considerable flexibility, they admit of much distention without pain, and then only feel pain when their flexibility does not yield to a further distention. Inflammation is painful by distention, as is shewn by its being often exactly correspondent to the pulsation of the arteries. But under exercise the blood is often impelled with as much force as in the case of inflammation; but it is presumed to be painful here, because the vessels are spasmodically contracted. When muscles are fixed in a contracted state, by remaining long in that position, they are pained by the tenth part of the extension which they formerly admitted. All this is illustrated by the cases of corns, old eschars, and former fractures, which are pained by the same causes which affect the parts in chronic rheumatism. The sum then is, that the pain of chronic rheumatism depends upon the fibres and vessels being in a contracted state."

CCCCLXXIII. Upon this view of the proximate cause, the general indication of cure must be to restore the activity and vigour of the vital principle in the part; and the remedies for this disease, which experience has approved of, are chiefly such as are manifestly suited to the indication proposed.

"We abstract here from all those cases of chronic rheumatism, in particular those of the *morbus coxarius*, which have matter lodged in or about the joint, whether originally or secondarily; and speak only of the remedies of genuine rheumatism, as we have before explained; and it will be obvious, that most of the remedies we are to mention, can have no affect, or may be very hurtful in the case of matter effused."

CCCCLXXIV. These remedies are either external or internal.

The external are,

The supporting the heat of the part, by keeping it constantly covered with flannel.

The increasing the heat of the part by external heat, applied either in a dry or in a humid form.

The diligent use of the flesh-brush, or other means of friction.—"The powers of friction in promoting the motion of the blood, and removing the obstruction, are well understood; and it is probable, that by oscillations promoted in the muscular fibres, they may be rendered more flexible and fitter to admit the action of the animal power: therefore well suited in both ways to take off the contraction in chronic rheumatism."

The application of electricity in sparks or shocks.—"The power of electricity in agitating the nervous system is well known: therefore its cure of palsy. The chronic rheumatism approaches very nearly to the state of palsy. It is evident, therefore, how fit electricity is for chronic rheumatism, and it has been employed accordingly with success. The success indeed has been various: in some failing altogether, in others proving a temporary relief only, in some doing harm, as the disease upon quitting the joint fell on some internal part, which was again relieved on the pains returning to the joints. In some it has proved an entire cure. Possibly it has often failed from not having been applied for a sufficient length of time. This is requisite, and it is therefore neglected by us for the same reasons as the frictions."

The application of cold water by effusion or immersion, "which acts by giving a tone, by stimulating and by exciting a brisker circulation over the whole surface of the body. It is not the astringent operation of cold; for that is not required, and would be hurtful: it must be its stimulant power; the proof of which is, that it operates better in pumping than by immersion. If, therefore, the whole body in the latter case, or the part in the former, quickly recovers it heat, or has it increased with more flexibility, the bathing does good, otherwise harm. So much depends upon exciting the action of the vessels of the part, that Sir John Floyer, an advocate for cold bathing, says, that then only is it effectual in chronic rheumatism, when it is directed to sweating."

The application of essential oils of the most warm and penetrating kind; the application of salt brine; and, lastly, the employment of exercise, either of the part itself, so far as it can easily bear it, or of the whole body, by riding, or other mode of gestation.

CCCCLXXV. The internal remedies are,

1. Large doses of essential oil drawn from resinous substances, such as turpentine.—"The oil of turpentine is a subtile stimulus, and may be supposed to reach the whole system; but it is a disagreeable medicine, not easily taken in the large quantity required, and I have not had experience of its success."

2. Substances containing such oils, as guaiac.—"In cases of chronic rheumatism, its virtues are more certainly established, and the employment of its decoction has been sometimes suc-

cessful: but both because the exhibition of it in large quantities is to most persons disagreeable, and because its resinous parts, in which its virtue chiefly resides, are not well extracted by water, the use of the decoction is very much laid aside, and even the extracts which have been proposed to be made from it are hardly in use. It is the resin that spontaneously flows from it in the countries in which it is produced, that is now chiefly employed in rheumatic and gouty cases.—*M.M.*

3. Volatile alkaline salts.

4. These, or other medicines directed to procure sweat (CLXIX.)—“ The chief is Dover's powder, the theory of which we have given before, and explained also the proper conduct of it. All to be added is, that we have found it the most effectual remedy of chronic rheumatism; but it requires a proper administration. I believe so well of this remedy, that I impute its failure in genuine rheumatism always to imperfect or faulty administration.

“ Another remedy of the same kind is our Haustus diaphoreticus; and it is often of use in discussing the relics of this disease, but not to be depended on for the cure: as both the dose of the opiate is small, and not directed to sweating. Every means of sweating without much stimulus, is a remedy here; and particularly, besides those already mentioned, cold and warm bathing.”

And, lastly, calomel or other preparation of mercury, in small doses, continued for some time.—“ I receive the effects of mercury with diffidence, because I think there is no certainty that mercury will act upon the blood-vessels as it does on the excretories: and either in one way or in another, I expect nothing, but from its being taken in such quantity as to be diffused over the whole system. If I were to trust to mercury, I should employ corrosive sublimate; but I have not, because I knew a course of mercury for some weeks employed without success.—These are my doubts, supported by some observations; but they are not sufficient to counterbalance the authority of Dr. Fothergill.”

CCCCLXXVI. These (CCCCLXIII. CCCCLXIV.) are the remedies successfully employed in the purely chronic rheumatism; and there are still others recommended: as bleeding, general and topical, burning, blistering, and issues: but these appear to me to be chiefly, perhaps only useful when the disease still partakes of acute rheumatism.

"Dr. Boerhaave has said that the lumbago and ischias are to be cured in the same manner as the acute rheumatism; and that the principal remedy of this is blood-letting: but this is unguarded; and we allege bleeding is never proper, never successful in chronic rheumatism. We have formerly shewn that general bleeding is only effectual where the system is affected, which is not the case here. If bleeding, therefore, is admissible, it is the topical only; and even this is doubtful, as there is no increased impetus nor inflammatory spasm. What bleeding will do in the contraction of the chronic rheumatism, may be doubtful; but, as the animal power is weakened, it should do harm. This I think, appears from experience; and if the contrary happens, it is in recent cases, where the acute rheumatism is not gone, where swelling recurs, and where some evening fever is at the bottom.

"With regard to purging, we have given our opinion, that it is not a very powerful or convenient remedy in the acute, and it must be still less so in the chronic rheumatism. The general effects of the evacuation are not proper: the evacuation of an acrimony is imaginary. If it has upon occasions been useful, I believe it must have been owing to the mercurials employed, or to other medicines acting as universal stimulants.

"But there was a singular practice of the ancients—the use of glysters in ischias. From the vicinity of the parts, they presumed that an evacuation from the rectum might draw humours from the neighbouring parts. This, with respect to the acrimony, is not correct; but certain it is that the arteries of the rectum are branches from the same trunks that furnish arteries to all the muscles about the hip-joint; and, therefore, blood drawn from the first may relieve any congestion in the latter. But the glysters can do no more than the topical bleeding from the muscles themselves, except on the supposition that the pains of the joint arise from a suppression or emansion of the hæmorrhoidal flux. To this purpose, Galen has this remarkable observation, 'Novi ischiadas una die sanatas, facta ex cruribus evacuatione sanguinis, nimirum ubi non ex frigore, sed impletis sanguine quæ in coxa sunt venis provenissent.' The ancients not only applied leeches to the anus, but employed glysters acrid enough to bring away blood. Galen, speaking of the semen thlaspi, says, 'semen hoc per sedem infusum sanguinolenta evacuans prodest ischiadicis;' and Rhazes employed colocynth in glysters to bring away blood for the cure of ischias, and says it has succeeded in a thousand persons, and only failed where the disease was so inveterate as to require burning. It seems, however, it did upon occasions fail; and Cotunnius tells, that the quacks of Italy have employed the same remedy with success, according to his observation and the testimony of others, but that it sometimes failed; and when it succeeded, it was a most cruel and painful operation. 'In quibus affuit, sæpe cohorruit, et ægrotantium miseram doluit vicem, quos videbat sub ista clysterum carnificina exanimes: magis etiam illos qui his novis cruciatibus toleratis, morbum nihilominus integrum retulerunt.'

"We thought it necessary to give you these accounts; but we conclude that the salutary effects are not certain enough to engage in such cruel practice."

CHAP. XIII.—OF THE TOOTHACH, OR ODONTALGIA.

CCCCLXXVII. I have formerly considered this disease as a species of Rheumatism, to be treated upon the same principles as those delivered in the preceding chapter; but now, from more attentive consideration, I am led to consider the toothach as a distinct disease. Whilst the most of what has been delivered in the last chapter proceeds upon the supposition that the rheumatism depends upon a certain state of the blood-vessels and of the motion of the blood in them, without this being produced by the irritation of any acrid matter applied; I judge that, in the toothach, though there are often the same circumstances in the state of the blood-vessels as in the cases of rheumatism, these circumstances in toothach always arise from the application of an acrid matter to the nerves of the teeth.

CCCCLXXVIII. This disease is often no other than a pain felt in a particular tooth, without any inflammatory affection being at the same time communicated to the neighbouring parts. This, however, is rarely the case; and, for the most part, together with the pain of the tooth, there is some degree of pain and of inflammatory affection communicated to the neighbouring parts, sometimes to the whole of those on the same side of the head with the affected tooth.

CCCCLXXIX. This inflammatory affection seems to me to be always an affection of muscles, and of the membranous parts connected with these, without any tendency to suppuration; and such an affection, as is excited by cold in similar parts elsewhere. It is from these circumstances that I conclude the affection to be of the rheumatic kind.

CCCCLXXX. It is possible that the muscles and membranes of the jaw may be affected by the same causes which produce the rheumatism in other parts; and it is also possible, that a rheumatic diathesis, at first produced by irritation, may subsist in the muscles and membranes of the jaw, so that the inflammatory affection may be renewed by certain causes, without any new application of acrid matter: but I am persuaded that either of these occurrences are very rare, and I have never been able to ascertain any cases of toothach to be of these kinds. I consider it, therefore, as highly probable, that this rheumatic affection of the jaws, which we name toothach, is always dependent upon some immediate application of acrid matter to the nerves of the teeth.

CCCCLXXXI. It is, however, to be observed, that this application of acrid matter does not always excite a pain in the tooth itself, or an inflammatory affection of the neighbouring parts, but that it very often operates by producing a diathesis only; so that cold applied to the neighbouring parts does excite both a pain in the tooth and an inflammatory affection of the neighbouring parts which did not appear before.

There seem to be also certain states of the body, which operate upon the same diathesis, so as to produce toothach. Such seems to be the case with pregnant women, who are more liable to toothach than other women. There are probably also some cases of increased irritability which render persons more subject to toothach. Thus women are more liable to the disease than men, and particularly women liable to hysteric affections.

CCCCLXXXII. The acrid matter producing this disease seems to be generated first in the hard substances of the teeth; and as it often appears first upon the external surface of these, it might be suspected to arise from the application of external matters to the teeth: but as the production of this acrimony is often begun in the internal cavity of the teeth, where the operation of external matters cannot be suspected, and as even when it begins upon the external parts of the teeth, the operation of the cause is at first in a small portion of the teeth only, it is difficult to suppose that any matter externally applied could act in such a partial manner; so it is presumed that the acrid matter occasioning the toothach is produced by some vice originating in the substance of the tooth itself. When it begins upon the external surface, it is on the enamel; but upon the internal surface, it must be in the bony part. From what causes it arises in either of these substances, I do not at all know; but I suspect that it often arises from some more general fault in the fluids of the body. The frequent use of mercury, especially when thrown much upon the mouth, and the state of the fluids in scurvy, seem both of them to give a disposition to a caries in the teeth; and it is possible that some other acrimonious states of the fluids may have the same effect.

CCCCLXXXIII. A caries in some part of the teeth, whether arising upon their internal surface or upon their external, proceeding so far as to reach the nerves in the cavity of the teeth, is pretty manifestly the cause of toothach, and of the first attacks of it; but when the cavity of the teeth has been opened, so that the external air or other matters can reach that cavity, these are often the exciting causes of toothach, and serve to prove in general, that acrid matters applied to the nerves occasion the disease.

CCCCLXXXIV. What is the nature of the matter produced in the caries of the teeth, I do not understand, nor have I found any proper corrector of it; but I presume it to be of the putrid kind, as it often taints the breath with a fetid odour.

CCCCLXXXV. In the cure of this disease, a long experience has shown, that the extraction of the carious tooth proves the most effectual, and very often the only effectual remedy of the disease. But as in some cases this extraction is not proper, and as in many cases it is obstinately avoided, other means of curing the disease, or at least of relieving the pain, have been sought for and much practised.

CCCCLXXXVI. Among these remedies, those are likely to be the most effectual which entirely destroy the affected nerve, or at least so much of it as is exposed to the action of the acrid matter in the tooth. When an opening is made into the cavity of the tooth, the nerve of it may be destroyed most certainly by the actual cautery; and it may also possibly be done by the application of potential caustics, either of the alkaline or acid kind.

CCCCLXXXVII. When these remedies cannot be rendered effectual, relief may often be obtained by diminishing the sensibility of the nerve affected, by the application of opium, or of the more acrid aromatic oils, directly to the nerve in the tooth. It appears also, that the sensibility of the affected nerve may often be for some time diminished by the external application of opium to the extremities of those nerves in the skin, which are branches of the same fifth pair of nerves with those of the teeth.

CCCCLXXXVIII. When the disease consists entirely in a pain of the nerve of the tooth, without any considerable affection communicated to the neighbouring parts, the remedies already mentioned are those especially to be employed; but when the disease consists very much in an inflammatory affection of the muscles and membranes of the jaw, and when at the same time there is little or no access for the above-mentioned remedies to the affected nerve, other measures are to be employed for relieving the disease.

CCCCLXXXIX. If the disease be attended with any general phlogistic diathesis of the system, or with any considerable degree of pyrexia, a general bleeding may be useful in relieving the disease; but these circumstances occur very rarely, and the disease is for the most part a purely topical affection; in which, as I observed before, a general bleeding is of very little service. As this disease, however, is a topical inflammation, it might be supposed that topical bleedings would be very useful, and sometimes they are so; but it is seldom that their effects are either considerable or permanent. The reasons of this I take to be, that the disease does not consist in an affection of the blood-vessels alone, as in the ordinary cases of rheumatism; but in a peculiar affection of the fibres both of the muscles and of the vessels of the part induced by irritation. The inefficacy of topical bleedings is with me a proof of the disease being of the latter kind.

CCCCXC. The remedies therefore necessary to give relief in this disease, are those which take off the spasm of the vessels, and especially of the muscles and membranes affected. Such are blistering, brought as near to the part affected as can conveniently be done; and such are also increased excretions excited in the neighbouring parts, as of the saliva and mucus of the mouth by the use of acrid masticatories. It is often sufficient to excite a strong sensation in the neighbouring parts; as by eau de luce, spirit of lavender, or Hungary water, snuffed up the nostrils; or by the vitriolic æther properly applied to the cheek. It is upon the same footing that I suppose brandy or other ardent spirit held in the mouth is often of service.

CCCCXCI. There are cases of toothach in which it does not appear that the disease arises from an acrid matter immediately applied to the nerve of a tooth; but from the external application of cold, or some other causes immediately applied to the muscles and membranes of the jaw; and which therefore seem to require some remedies different from those above-mentioned. But in all such cases, it is to be suspected, that the effects of cold, or of other such causes, are owing to a diathesis produced by an acrid matter applied to the nerve of a tooth, and continuing in some measure to act there; and we have accordingly often found, that the action of those external causes was to be obviated only by the extraction of the tooth from which the diathesis had arisen.

CHAP. XIV.—OF THE GOUT.

CCCCXCII. The Gout, not only as it occurs in different persons, but even as it occurs in the same person at different times, is a disease of such various appearance that it is difficult to render the history of it complete and exact, or to give a character of it that will universally apply. However I shall endeavour to describe the disease as it most commonly appears, and to mark the varieties of it as well as I can. From such a history I expect that a general character may be given; and such I think is the following, as given in the last edition of our Nosology:

> GEN. XXIII.—PODAGRA.—Morbus hæreditarius, oriens sine causa externa evidente, sed præeunte plerumque ventriculi affectione insolita, pyrexia, dolor ad articulum, et plerumque pedis pollici, certe pedum et manuum juncturis, potissimum infestus; per intervalla revertens, et sæpe cum ventriculi, et aliarum internarum partium affectionibus alternans.

"I imagine that the history of the disease is as fully delivered by Dr. Sydenham as can well be done: he laboured under the disease himself for eighteen years before he wrote; and there is no doubt but that he was particularly attentive to it in many other persons. Nothing surprises me more than the diversity of facts supported by physicians. A physician of very great rank, and in high reputation in the learned world, Dr. Martin Lister, says that the most part of Sydenham's history of this disease, is a *bella et lepida fictio.* So strong an opposition must tend to raise some doubts, but I say we must disregard it; and were I to express my sentiments, it would be to say, that the author of whom I speak, notwithstanding his high character and works, is entitled to no regard in physic, whatever reputation he may have as a natural historian. It is well that I can add, in favour of Dr. Sydenham, the testimony of almost all the physicians. Dr. Hoffmann, instead of giving his own account, transcribes the history of Sydenham; Boerhaave does no other; and Dr. Warner owns that he could do no better than translate Dr. Sydenham's history of the disease."

CCCCXCIII. The gout is generally a hereditary disease; but some persons, without hereditary disposition, seem to acquire it; and in some a hereditary disposition may be counteracted by various causes. These circumstances may seem to give exceptions to our general position, but the facts directly supporting it are very numerous.

CCCCXCIV. This disease attacks especially the male sex; but it sometimes, though more rarely, attacks also the female. The females liable to it are those of the more robust and full habits; and it very often happens to such long before the menstrual evacuation has ceased. I have found it occurring in several females whose menstrual evacuations were more abundant than usual.

CCCCXCV. This disease seldom attacks eunuchs; and when it does, they seem to be those who happen to be of a robust habit, to lead an indolent life, and to live very full.

CCCCXCVI. The gout attacks especially men of robust and large bodies; men of large heads; of full and corpulent habits; and men whose skins are covered with a thicker rete mucosum, which gives a coarser surface.

CCCCXCVII. If, with the ancients, we might ascertain by certain terms the temperaments of men, I would say that the gout attacks especially men of a *cholerico-sanguine* temperament, and that it very seldom attacks the purely sanguine or melancholic. It is, however, very difficult to treat this matter with due precision.

CCCCXCVIII. The gout seldom attacks persons employed in constant bodily labour, or persons who live much upon vegetable aliment. It is also said to be less frequent among those people who make no use of wine or other fermented liquors.

CCCCXCIX. The gout does not commonly attack men till after the age of five-and-thirty; and generally not till a still later period. There are indeed instances of the gout occurring more early; but these are few in comparison of the numbers which agree with what we have given as the general rule. When the disease does appear early in life, it seems to be in those in whom the hereditary disposition is very strong, and to whom the remote causes to be hereafter mentioned, have been applied in a considerable degree.

"To conclude, it is alleged, that it more frequently attacks the wise than the foolish. Indeed it would require a good deal of discussion to settle the precise state of this fact, or to say how far it is applicable; but this subject is more curious than useful; and I shall conclude by quoting Dr. Sydenham, who, in the introduction to the treatise *de podagra*, says: 'ad hæc, isti qui huic morbo sunt obnoxii, crania habent grandiuscula, habitu corporis ut plurimum sunt pleniori, humido et laxo: et constitutionem habent omnes luxuriantem virosamque, ditissima atque optima vitæ stamina.'"

D. As the gout is a hereditary disease, and affects especially men of a particular habit, its remote causes may be considered as predisponent and occasional.

DI. The predisponent cause, so far as expressed by external appearances, or by the general temperament, we have already marked; and physicians have been very confident in assigning the occasional causes; but in a disease depending so much upon a predisposition, the assigning occasional causes must be uncertain, as, in the predisposed, the occasional causes may not always appear; and in persons not predisposed, they may appear without effect. This uncertainty must particularly affect the case of the gout; but I shall offer what appears to me most probable on the subject.

DII. The occasional causes of the gout seem to be of two kinds. First, those which induce a plethoric state of the body. Secondly, those which, in plethoric habits, induce a state of debility.

DIII. Of the first kind are a sedentary and indolent manner of life, a full diet of animal food, and the large use of wine or of other fermented liquors. These circumstances commonly precede the disease; and if there should be any doubt of their power of producing it, the fact, however, will be rendered sufficiently probable by what has been observed in CCCCXCVIII.

DIV. Of the second kind of occasional causes which induce debility are, excess in venery; intemperance in the use of intoxicating liquors; indigestion, produced either by the quantity or quality of aliments; much application to study or business; night-watching; excessive evacuations; the ceasing of usual labour; the sudden change from a very full to a very spare diet; the large use of acids and acescents; and, lastly, cold applied to the lower extremities.

DV. The first (DIII.) seem to act by increasing the predisposition. The last (DIV.) are commonly the exciting causes, both of the first attacks and of the repetitions of the disease.

DVI. It is an inflammatory affection of some of the joints which especially constitutes what we call a paroxysm of the gout. This sometimes comes on suddenly without any warning, but is generally preceded by several symptoms; such as the ceasing of a sweating which the feet had been commonly affected with before; an unusual coldness of the feet and legs; a frequent numbness, alternating with a sense of prickling along the whole of the lower extremities; frequent cramps of the muscles of the legs; and an unusual turgescence of the veins.

DVII. While these symptoms take place in the lower extremities, the whole body is affected with some degree of torpor and languor, and the functions of the stomach in particular are more or less disturbed. The appetite is diminished; and flatulency, or other symptoms of indigestion, are felt. These symptoms, and those of DIV., take place for several days, sometimes for a week or two, before a paroxysm comes on; but commonly, upon the day immediately preceding it, the appetite becomes greater than usual.

DVIII. The circumstances of paroxysms are the following: They come on most commonly in the spring, and sooner or later, according as the vernal heat succeeds sooner or later to the winter's cold; and perhaps sooner or later also according as the body may happen to be more or less exposed to the vicissitudes of heat and cold.

DIX. The attacks are sometimes felt first in the evening, but more commonly about two or three o'clock of the morning. The paroxysm begins with a pain affecting one foot, most commonly in the ball or first joint of the great toe, but sometimes in other parts of the foot. With the coming on of this pain, there is commonly more or less of a cold shivering, which, as the pain increases, gradually ceases, and is succeeded by a hot stage of pyrexia, which continues for the same time with the pain itself. From the first attack, the pain becomes by degrees more violent, and continues in this state, with great restlessness of the whole body, till next midnight, after which it gradually remits; and after it has continued for twenty-four hours from the commencement of the first attack, it commonly ceases very entirely, and, with the coming on of a gentle sweat, allows the patient to fall asleep. The patient, upon coming out of this sleep in the morning, finds the pained part affected with some redness and swelling, which, after having continued some days, gradually abate.

DX. When a paroxysm has thus come on, although the violent pain after twenty-four hours be considerably abated, the patient is not entirely relieved from it. For some days he has every evening a return of more considerable pain and pyrexia, and which continue with more or less violence till morning. After continuing in this manner for several days, the disease sometimes goes entirely off, not to return till after a long interval.

DXI. When the disease, after having thus remained for some time in a joint, ceases very entirely, it generally leaves the person in very perfect health, enjoying greater ease and alacrity in the functions of both body and mind than he had for a long time before experienced.

DXII. At the beginning of the disease, the returns of it are sometimes only once in three or four years: but, after some time, the intervals become shorter, and the attacks become annual; afterwards they come twice each year, and at length recur several times during the whole course of autumn, winter, and spring; and as it happens that, when the fits are frequent, the paroxysms become also longer, so, in the advanced state of the disease, the patient is hardly ever tolerably free from it, except perhaps for two or three months in summer.

DXIII. The progress of the disease is also marked by the parts which it affects. At first, it commonly affects one foot only; afterwards every paroxysm affects both feet, the one after the other; and, as the disease continues to recur, it not only affects both feet at once, but after having ceased in the foot which was secondly attacked, returns again into the foot first affected, and perhaps a second time also into the other. Its changes of place are not only from one foot to the other, but also from the feet into other joints, especially those of the upper and lower extremities; so that there is hardly a joint of the body that is not, on one occasion or other, affected: it sometimes affects two different joints at the same time; but more commonly it is severe in a single joint only, and passes successively from one joint to another; so that the patient's affliction is often protracted for a long time.

DXIV. When the disease has often returned, and the paroxysms have become very frequent, the pains are commonly less violent than they were at first; but the patient is more affected with sickness and the other symptoms of the atonic gout, which shall be hereafter mentioned.

DXV. After the first paroxysms of the disease, the joints which have been affected are entirely restored to their former suppleness and strength: but after the disease has recurred very often, the joints affected do neither so suddenly nor so entirely recover their former state, but continue weak and stiff; and these effects at length proceed to such a degree, that the joints lose their motion altogether.

DXVI. In many persons, but not in all, after the disease has frequently recurred, concretions of a chalky nature are formed upon the outside of the joints, and for the most part immediately under the skin. The matter seems to be deposited at first in a fluid form, but afterwards becomes dry and firm. In their dry state, these concretions are a friable earthy substance, very entirely soluble in acids. After they have been formed, they contribute, with other circumstances, to destroy the motion of the joint.

DXVII. In most persons who have laboured under the gout for many years, a nephritic affection comes on, and discovers itself by all the symptoms which usually attend calculous concretions in the kidneys, and which we shall have occasion to describe in another place. All that is necessary to be observed here, is, that the nephritic affection alternates with paroxysms of the gout, and that the two affections, the nephritic and the gouty, are hardly ever present at the same time.

"Upon many occasions we have observed the affection of the kidneys supervening shortly after the gout had finished its course in the extremities. I knew of a gentleman who never missed to have regularly a nephritic fit after an attack of the gout. Where the gout seems to have run its course, if it is determined to the kidneys, it ceases in the other parts. On the other hand, in persons grievously affected with nephritic complaints, these are relieved if the gout supervenes. I had once an extraordinary instance of this kind in a gentleman who had laboured under the gout for more than twenty years; and at a time when otherwise, from the decline of life, the gout was less vigorous in point of inflammation—he was for two or three years troubled with nephritic affections; and when these were frequent he never had the gout. The nephritic affections were followed by various consequences: the whole urinary passages from the kidneys along the ureters, were affected with inflammation and scirrhosity, and with various ulcerations. In this situation, when a strangury almost constantly troubled him, and he had fallen into a hectic fever in consequence of internal suppuration, and was reduced to the lowest degree in point of strength and vigour, a fit of the gout actually came on in one foot, then went into the other, kept its ordinary duration, and went back again into the first. The consequence was, that during this fit of the gout, he was free from the whole symptoms of the urinary passages, and made urine freely, and with much less discharge of that mucus which otherwise accompanied his urine."

This also may be observed, that children of gouty or nephritic parents commonly inherit one or other of these diseases, but whichever may have been the principal disease of the parent, some of the children have the one, and some the other. In some of them the nephritic affection occurs alone without any gout supervening; and this happens to be frequently the case of the female offspring of gouty parents.

DXVIII. In the whole of the history already given, I have described the most common form of the disease; and which therefore, however diversified in the manner I have said, may be still called the regular state of the gout. Upon occasion, however, the disease assumes different appearances; but, as I suppose the disease to depend always upon a certain diathesis or disposition of the system, so every appearance which we can perceive to depend upon that same disposition, I still consider as a symptom and case of the gout. The principal circumstance in what we term the Regular Gout, is the inflammatory affection of the joints; and whatever symptoms we can perceive to be connected with, or to depend upon, the disposition which produces that inflammatory affection, but without its taking place, or being present at the same time, we name the Irregular Gout.

DXIX. Of such Irregular Gout there are three different states, which I name the Atonic, the Retrocedent, and the Misplaced Gout.

DXX. The Atonic state is when the gouty diathesis prevails in the system, but, from certain causes, does not produce the inflammatory affection of the joints. In this case, the morbid symptoms which appear are chiefly affections of the stomach; such as loss of appetite, indigestion, and its various circumstances of sickness, nausea, vomiting, flatulency, acid eructations, and pains in the region of the stomach. These symptoms are frequently accompanied with pains and cramps in several parts of the trunk, and the upper extremities of the body, which are relieved by the discharge of wind from the stomach. Together with these affections of the stomach, there commonly occurs a costiveness; but sometimes a looseness, with colic pains. These affections of the alimentary canal are often attended with all the symptoms of hypochondriasis; as dejection of mind, a constant and anxious attention to the slightest feelings, an imaginary aggravation of these, and an apprehension of danger from them.

In the same atonic gout, the viscera of the thorax also are sometimes affected, and palpitations, faintings, and asthma, occur.

In the head also occur, headachs, giddiness, apoplectic and paralytic affections.

DXXI. When the several symptoms now mentioned occur in habits having the marks of a gouty disposition, this may be suspected to have laid the foundation of them; and especially when either, in such habits, a manifest tendency to the inflammatory affection has formerly appeared; or when the symptoms mentioned are intermixed with, and are relieved by, some degree of the inflammatory gout. In such cases there can be no doubt of considering the whole as a state of the gout.

DXXII. Another state of the disease I name the Retrocedent gout. This occurs when an inflammatory state of the joints has, in the usual manner, come on, but which, without arising to the ordinary degree of pain and inflammation, or, at least, without these continuing for the usual time, and receding gradually in the usual manner, suddenly and entirely ceases, while some internal part becomes affected. The internal part most commonly affected is the stomach, which is then affected with anxiety, sickness, vomiting, or violent pain; but sometimes the internal part is the heart, which gives occasion to a syncope; sometimes it is the lungs which are affected with asthma; and sometimes it is the head, giving occasion to apoplexy or palsy. In all these cases, there can be no doubt of the symptoms being all a part of the same disease, however different the affection may seem to be in the parts which it attacks.

DXXIII. The third state of irregular gout, which we name the Misplaced, is when the gouty diathesis, instead of producing the inflammatory affection of the joints, produces an inflammatory affection of some internal part, and which appears from the same symptoms that attend the inflammation of those parts arising from other causes.

Whether the gouty diathesis does ever produce such inflammation of the internal parts, without having first produced it in the joints, or if the inflammation of the internal parts be always a translation from the joints previously affected, I dare not determine; but, even supposing the latter to be always the case, I think the difference of the affection of the internal part must still distinguish the Misplaced from what I have named the Retrocedent Gout.

DXXIV. What internal parts may be affected by the misplaced gout, I cannot precisely say, because I have never met with any cases of the misplaced gout in my practice; and I find no cases of it distinctly marked by practical writers, except that of pneumonic inflammation.

DXXV. There are two cases of a translated gout; the one of which is an affection of the neck of the bladder, producing pain, strangury, and a catarrhus vesicæ: the other is an affection of the rectum, sometimes by pain alone in that part, and sometimes by hæmorrhoidal swellings there. In gouty persons I have known such affections alternate with inflammatory affections of the joints; but whether to refer these affections to the retrocedent or to the misplaced gout, I will not presume to determine.

DXXVI. From the history which I have now delivered of the gout, I think it may be discerned under all its various appearances. It is, however, commonly supposed, that there are cases in which it may be difficult to distinguish gout from rheumatism, and it is possible there may be such cases: but, for the most part, the two diseases may be distinguished with great certainty by observing the predisposition, the antecedents, the parts affected, the recurrences of the disease, and its connexion with the other parts of the system; which circumstances, for the most part, appear very differently in the two diseases.

" Rheumatism and Gout are distinguished, *First*, By their remote causes: Rheumatism may be known by its cause, the evident application of cold. I will not deny that gout has been brought on by the same circumstances, by cold affecting the body, and in a patient labouring under a catarrh; but this is very rarely the case in the first attack. One cause they have in common, viz. sprains; for, if desired to recollect, most patients attribute to this the first fit of the gout, as well as the rheumatism. Often hereditary communication may be considered as the cause of the gout, never of rheumatism; for though the latter may appear in those whose parents have been subject to it, yet we always find, that it has, even in them, arisen from external causes.

" *Secondly*, The gout is more frequently preceded by some change in the state of the stomach, some symptoms of indigestion, with this peculiarity, that after they have subsisted for many days, or even for weeks, the day immediately before the attack of the gout the appetite is uncommonly sharp and vigorous. I have observed that the rheumatism is a disease of the joints, and that it only affects the other parts by the inflammation it excites, and the increase of the action of the vascular system, or fever. Indeed, this is also true of gout, that it excites a greater action of the heart and fever; but the gout is particularly connected with the viscera, viz. the brain in the cranium, the lungs in the thorax, and the abdominal viscera, but in an especial manner with the stomach. Thus, the gout is generally preceded by indigestion, borborygmi, and costiveness; the appetite is sometimes worse, but for the most part keener before the paroxysm; and, generally, if a gouty patient is desired to reflect, he will remember that some particular affection of his stomach appeared before the fit, though he will not himself mention it, as at other times he is used to it.

" *Thirdly*, By the part affected. In both cases the pains accompany especially the joints; but while the gout seldom affects muscular parts separate from the joints, the rheumatism frequently does so; and while the chief seat in the gouty pains is in the joints, we can perceive that the rheumatism runs along the course of the muscles and communicating membranes. The hip-joint is affected by both diseases; and there it is most difficult to distinguish them. In rheumatic affections the pains do not remain fixed there, but extend along the thigh, shooting out more violently in the knee-joint, and from thence descending to the ancle. The sciatic gout much more rarely spreads its pains to the next joints in this manner.

" The seat of the pain is further distinguished by the particular joints which the one or the other is disposed to occupy. In the rheumatism it is often spread over a considerable part of the body, so that a number of joints are frequently affected together, a circumstance very rare in the gout, in which the pain moves only from one foot to the other, nor is it ever considerable in both at the same time. In rheumatism it is more severe in one joint than in another; but the patient is frequently at a loss to say which of them is the most violent. The rheumatic pains are more common in the shoulders, elbows, and wrists, and rare in the joints of the thumb and finger; in the lower extremities they are in the knees and ancles; but rare in the ball of the great toe.

" *Fourthly*, Both diseases may, after being cured, again recur; but we very often find rheumatism occurring only once during life. The gout almost constantly returns at the seasons which are common to it, as well as to rheumatism, spring and autumn. But the recurrence of rheumatism is not steady, and subject to the action of the exciting causes; the gout, on the other hand, is, with the exception of uncommon cases, pretty steady to the above periods.

" *Fifthly*, A distinction which generally holds is the time of life. We have, in these latter days of indolence and luxury, had instances of very early gout: I have even a case of it in a patient of twelve years old, which, by the sequel, has proved to be as much the gout as in one of fifty; and there are other instances of it both in males aud females under twenty; but these are very singular and uncommon. To establish a general rule, I would say with Dr. Cheyne, that the gout seldom appears before the meridian of life, which he places at thirty-five. The rheumatism, on the contrary, while it may affect at any period of life, in nine cases out of ten appears in persons under the age of thirty-five, and frequently under the age of twenty-five.

" Some kind of difference may be taken from the sex of those who are subject to it. The rheumatism belongs to both sexes: the gout is more common in men. But this is still to be admitted only in a general view. Hippocrates says, that women are not subject till after their menstruation is over. I know, however, that this does not apply to our climate; for I have known women have the gout before that evacuation disappeared, and even such as menstruated frequently, and in great quantity. And a creditable author informs us of a goutish paroxysm in a girl of sixteen.

" To sum up what we have said: The rheumatism is an *accidental disease*, not owing to any particular predisposition or propagation from parents to children. It is topical, and does not affect the nervous system. The gout is, on the other hand, a *constitutional disease*, is general, and affects the viscera and nervous system."

DXXVII. With respect to the gout, our next business is to investigate its proximate cause, which must be a difficult task, and I attempt it with some diffidence.

" The theory of gout is not only to me interesting in itself, but it is of importance with regard to our general pathology, as we have occasion at the same time to discuss our fundamental propositions."

DXXVIII. Upon this subject, the opinion which has generally prevailed is, that the gout depends upon a certain morbific matter, always present in the body; and that this matter, by certain causes, thrown upon the joints or other parts, produces the several phenomena of the disease.

“ Stahl is the only writer who has thought that the supposition of a morbific matter was not necessary, and that the disease could be better explained by the state of the motions of the system. I very early adopted this opinion of Stahl; the contrary however is generally received; and when persons wished to shew the absurdity of my opinions, they thought that this was the strongest proof of it, that I denied the existence of a morbific matter in the gout. But notwithstanding that, the more I have considered the matter, the more I am confirmed. I allow you to suspect me of what prejudices you please with regard to my opinion, but not only with a view to establish my own opinion, but to put you in a condition to judge of this matter, I think it is absolutely necessary to give my reasons for doubting of the common opinion.”

DXXIX. This doctrine, however ancient and general, appears to me very doubtful; for,

First, There is no direct evidence of any morbific matter being present in persons disposed to the gout. There are no experiments or observations which shew that the blood, or other humours of gouty persons, are in any respect different from those of other persons. Previous to attacks of the gout, there appear no marks of any morbid state of the fluids; for the disease generally attacks those persons who have enjoyed the most perfect health, and appear to be in that state when the disease comes on. At a certain period of the disease, a peculiar matter indeed appears in gouty persons (DXVI.); but this, which does not appear in every instance, and which appears only after the disease has subsisted for a long time, seems manifestly to be the effect, not the cause of the disease. Further, though there be certain acrids which, taken into the body, seem to excite the gout (DIV.), it is probable that these acrids operate otherwise in exciting the disease than by affording the material cause of it. In general, therefore, there is no proof of any morbific matter being the cause of the gout.

Secondly, The suppositions concerning the particular nature of the matter producing the gout, have been so various and so contradictory to each other, as to allow us to conclude that there is truly no proof of the existence of any of them. With respect to many of these suppositions, they are so inconsistent with chemical philosophy, and with the laws of the animal economy, that they must be entirely rejected.

Thirdly, The supposition of a morbific matter being the cause of the gout, is not consistent with the phenomena of the disease, particularly with its frequent and sudden translations from one part to another.—" One of the causes removing the gout is the passions of the mind. We have instances of both anger and fear giving the gout, and as suddenly and instantaneously taking it away. We can readily perceive how these passions operate upon the motions of the nervous system."

Fourthly, The supposition is farther rendered improbable by this, that, if a morbific matter did exist, its operation should be similar in the several parts which it attacks; whereas it seems to be very different, being stimulant and exciting inflammation in the joints, but sedative and destroying the tone in the stomach, which, upon the supposition of particular matter acting in both cases, is not to be explained by any difference in the part affected.

Fifthly, Some facts, alleged in proof of morbific matter, are not sufficiently confirmed, such as those which prove the disease to be contagious. There is, however, no proper evidence of this, the facts given being not only few, but exceptionable; and the negative observations are innumerable.

Sixthly, Some arguments brought in favour of a morbific matter, are founded upon a mistaken explanation. The disease has been supposed to depend upon a morbific matter, because it is hereditary. But the inference is not just; for most hereditary diseases do not depend upon any morbific matter, but upon a particular conformation of the structure of the body, transmitted from the parent to the offspring; and this last appears to be particularly the case in the gout. It may be also observed, that hereditary diseases, depending upon a morbific matter, always appear much more early in life than the gout commonly does.

Seventhly, The supposition of a morbific matter being the cause of the gout, has been hitherto useless, as it has not suggested any successful method of cure. Particular suppositions have often corrupted the practice, and have frequently led from those views which might be useful, and from that practice which experience had approved. Further, though the supposition of a morbific matter has been generally received, it has been as generally neglected in practice. When the gout has affected the stomach, nobody thinks of correcting the matter supposed to be present there, but merely of restoring the tone of the moving fibres.

Eighthly, The supposition of a morbific matter is quite superfluous; for it explains nothing without supposing that matter to produce a change in the state of the moving powers; and a change in the state of the moving powers, produced by other causes, explains every circumstance, without the supposition of a morbific matter; and, to this purpose, it may be observed, that many of the causes (DIV.) exciting the gout, do not operate upon the state of the fluids, but directly and solely upon that of the moving powers.

Lastly, The supposition of a morbific matter is also superfluous; because, without any such supposition, I think the disease can be explained in a manner more consistent with its phenomena, with the laws of the animal economy, and with the method of cure which experience has approved.

I now proceed to give this explanation; but before entering upon it, I must premise some general observations.

DXXX. The first observation is, that the gout is a disease of the whole system, or depends upon a certain general conformation and state of the body; which manifestly appears from the facts mentioned from CCCCXCIV. to CCCCXCVII. But the general state of the system depends chiefly upon the state of its primary moving powers; and therefore the gout may be supposed to be chiefly an affection of these.

DXXXI. My second observation is, that the gout is manifestly an affection of the nervous system; in which the primary moving powers of the whole system are lodged. The occasional or exciting causes (DIV.) are almost all such as act directly upon the nerves and nervous system; and the greater part of the symptoms of the atonic or retrocedent gout are manifestly affections of the same system (DXX. and DXXII.). This leads us to seek for an explanation of the whole of the disease in the laws of the nervous system, and particularly in the changes which may happen in the balance of its several parts.

"Of the several pyrexiæ, which are diseases of the sanguiferous system, some are with, and others without a considerable affection of the nervous system: pyrexia and neuroses, therefore, are necessarily and unavoidably mixed more or less with one another. Of those which are mixed, gout is a principal instance, in so far as it is an inflammatory disease; like rheumatism, it is placed among the pyrexiæ; but it is among the limits between pyrexia and neuroses, and shews more than any other pyrexia does of an affection of the nervous system."

DXXXII. My third observation is, that the stomach, which has so universal a consent with the rest of the system, is the internal part that is the most frequently, and often very considerably affected by the gout. The paroxysms of the disease are commonly preceded by an affection of the stomach (DVII.); many of the exciting causes (DIV.) act first upon the stomach; and the symptoms of the atonic and retrocedent gout (DX. and DXXII.) are most commonly and chiefly affections of the same organ. This observation leads us to remark, that there is a balance subsisting between the state of the internal and that of the external parts; and, in particular, that the state of the stomach is connected with that of the external parts (XLIV.), so that the state of tone in the one may be communicated to the other.

DXXXIII. These observations being premised, I shall now offer the following pathology of the gout.

In some persons there is a certain vigorous and plethoric state of the system (CCCCXCVI.) which, at a certain period of life, is liable to a loss of tone in the extremities (CCCCXCIX. to DVI.). This is in some measure communicated to the whole system, but appears more especially in the functions of the stomach (DVII.). When this loss of tone occurs while the energy of the brain still retains its vigour, the vis medicatrix naturæ is excited to restore the tone of the parts, and accomplishes it by exciting an inflammatory affection in some part of the extremities. When this has subsisted for some days, the tone of the extremities and of the whole system is restored, and the patient returns to his ordinary state of health (DXI.).

DXXXIV. This is the course of things in the ordinary form of the disease, which we name the *regular gout;* but there are circumstances of the body in which this course is interrupted or varied. Thus, when the atony (DVI. and DVII.) has taken place, if the reaction (DIX.) do not succeed, the atony continues in the stomach, or perhaps in other internal parts, and produces that state which we have, for reasons now obvious, named the *atonic gout.*

DXXXV. A second case of variation in the course of the gout is, when, to the atony, the reaction and inflammation have to a certain degree succeeded, but, from causes either internal or external, the tone of the extremities, and perhaps of the whole system, is weakened; so that the inflammatory state, before it had either proceeded to the degree, or continued for the time requisite for restoring the tone of the system, suddenly and entirely ceases. Hence the stomach, and other internal parts, relapse into the state of atony; and perhaps have this increased by the atony communicated from the extremities: all which appears in what we have termed the *retrocedent gout.*

DXXXVI. A third case of variation from the ordinary course of the gout, is, when to the atony usually preceding, an inflammatory reaction fully succeeds; but has its usual determination to the joints by some circumstances prevented, and is therefore directed to an internal part, where it produces an inflammatory affection, and that state of things which we have named the *misplaced gout.*

DXXXVII. We have thus offered an explanation of the circumstances of the system in the several states of the gout; and this explanation we suppose to be consistent with the phenomena of the disease, and with the laws of the animal economy. There are indeed, with respect to the theory of the disease, several questions which might be put; to which we have not given any answer. But, though perhaps we could give an answer to many of these questions, it does not here appear necessary; as at present we intend only to establish such general facts, with regard to this disease, as may lay a foundation for the cure of it, so far as experience has enabled us to prosecute it. Proceeding, therefore, upon the several parts of the pathology given, as so many matters of fact, I shall now consider what may be attempted towards the cure of the disease.

DXXXVIII. In entering upon this, I must observe, in the first place, that a cure has been commonly thought impossible; and we acknowledge it to be very probable, that the gout, as a disease of the whole habit, and very often depending upon original conformation, cannot be cured by medicines, the effects of which are always very transitory, and seldom extend to the producing any considerable change of the whole habit.

DXXXIX. It would perhaps have been happy for gouty persons, if this opinion had been implicitly received by them; as it would have prevented their having been so often the dupes of self-interested pretenders, who have either amused them with inert medicines, or have rashly employed those of the most pernicious tendency. I am much disposed to believe the impossibility of a cure of the gout by medicines; and more certainly still incline to think, that whatever may be the possible power of medicines, yet no medicine for curing the gout has hitherto been found. Although almost every age has presented a new remedy, yet all hitherto offered have very soon been either neglected as useless, or condemned as pernicious.

DXL. Though unwilling to admit the power of medicines, yet I contend, that a great deal can be done towards the cure of the gout by a regimen: and from what has been observed (CCCCXCVIII.), I am firmly persuaded, that any man who, early in life, will enter upon the constant practice of bodily labour, and of abstinence from animal food, will be preserved entirely from the disease.—"Of such, not one in a thousand is affected with the gout, and yet many of them have it by hereditary right. We know that among people descended from gouty parents, but who happened to be in circumstances very different from them, being doomed to labour and abstinence, there are instances where the gout never has occurred: it is moreover certain, that men of wealth and of gout, sufficiently addicted to the female sex, beget an offspring which are never elevated above the condition of their mother: there can be little doubt that many of these have the hereditary right and disposition to gout, but living on low diet, and free from intemperance, they are not affected with the disease."

Whether there be any other means of radically curing the gout, I am not ready to determine. There are histories of cases of the gout, in which it is said, that by great emotions of mind, by wounds, and by other accidents, the symptoms have been suddenly relieved, and never again returned; but how far these accidental cures might be imitated by art, or would succeed in other cases, is at least extremely uncertain.

DXLI. The practices proper and necessary in the treatment of the gout, are to be considered under two heads: *first*, As they are to be employed in the intervals of paroxysms; or, *secondly*, As during the time of these.

DXLII. In the intervals of paroxysms, the indications are, to prevent the return of paroxysms, or at least to render them less frequent and more moderate. During the time of paroxysms, the indications are, to moderate their violence, and shorten the duration of them as much as can be done with safety to the patient.

DXLIII. It has been already observed, that the gout may be entirely prevented by constant bodily exercise, and by a low diet; and I am of opinion, that this prevention may take place even in persons who have a hereditary disposition to the disease. I must add here, that, even when the disposition has discovered itself by several paroxysms of inflammatory gout, I am persuaded that labour and abstinence will absolutely prevent any returns of it for the rest of life. These, therefore, are the means of answering the first indication to be pursued in the intervals of paroxysms; and I must here offer some remarks upon the proper use of these remedies.

DXLIV. Exercise in persons disposed to the gout is directed to two purposes: One of these is the strengthening of the tone of the extreme vessels; and the other, the guarding against a plethoric state. For the former, if exercise be employed early in life, and before intemperance has weakened the body, a very moderate degree of it will answer the purpose; and for the latter, if abstinence be at the same time observed, little exercise will be necessary.

DXLV. With respect to exercise, this in general is to be observed, that it should never be violent; for, if violent, it cannot be long continued, and must always endanger the bringing on an atony in proportion to the violence of the preceding exercise.

DXLVI. It is also to be observed, that the exercise of gestation, though considerable and constant, if it be entirely without bodily exercise, will not answer the purpose in preventing the gout. For this end, therefore, the exercise must be in some measure that of the body; and must be moderate, but at the same time constant, and continued through life.

DXLVII. In every case and circumstance of the gout in which the patient retains the use of his limbs, bodily exercise, in the intervals of paroxysms, will always be useful; and, in the beginning of the disease, when the disposition to it is not yet strong, exercise may prevent a paroxysm which otherwise might have come on. In more advanced states of the disease, however, when there is some disposition to a paroxysm, much walking will bring it on; either as it weakens the tone of the lower extremities, or as it excites an inflammatory disposition in them; and it is probable, that in the same manner strains or contusions often bring on a paroxysm of the gout.

DXLVIII. Abstinence, the other part of our regimen (DXL.) for preventing the gout, is of more difficult application. If an abstinence from animal food be entered upon early in life, while the vigour of the system is yet entire, we have no doubt of its being both safe and effectual; but, if the motive for this diet shall not have occurred till the constitution shall have been broken by intemperance, or by the decline of life, a low diet may then endanger the bringing on an atonic state.

DXLIX. Further, if a low diet be entered upon only in the decline of life, and be at the same time a very great change in the former manner of living, the withdrawing of an accustomed stimulus of the system may readily throw this into an atonic state.

DL. The safety of an abstemious course may be greater or less according to the management of it. It is animal food which especially disposes to the plethoric and inflammatory state, and that food is to be therefore especially avoided; but, on the other hand, it is vegetable aliment of the lowest quality that is in danger of weakening the system too much, by not affording sufficient nourishment; and more particularly, of weakening the tone of the stomach by its acescency. It is therefore a diet of a middle nature that is to be chosen; and milk is precisely of this kind, as containing both animal and vegetable matter.

As approaching to the nature of milk, and as being a vegetable matter containing the greatest portion of nourishment, the farinaceous seeds are next to be chosen, and are the food most proper to be joined with milk.

"As we know that in the plethoric habits liable to the disease, a certain degree of vigour, and a certain firmness of tone in the whole system, particularly discovered by the state of that in the stomach, is necessary to produce the inflammation of the extremities, the necessary crisis in such habits; so, various disorders may be occasioned in such persons, by diminishing the vigour and tone of the system: accordingly, it is possible, that a milk diet, more especially as a change from one more nourishing, may have that effect; and I am therefore of opinion, that for entirely preventing the gout, it is necessary that a milk diet be entered upon early in life, before the gouty diathesis be formed. But if, after the gout has come on, a milk diet is to be employed for a cure, it must be in persons of entire vigour only: and there are instances of its being employed in such with advantage and safety. In gouty persons, however, advanced in life, and who are liable to a loss of tone, there may be much danger in attempting a milk diet; but at the same time, I must say, that as milk is not so weak a diet as one entirely of vegetables, so the former will always be more safe than the latter.—*M.M.*

DLI. With respect to drink, fermented liquors are useful only when they are joined with animal food, and that by their acescency; and their stimulus is only necessary from custom. When, therefore, animal food is to be avoided, fermented liquors are unnecessary; and, by increasing the acescency of vegetables, these liquors may be hurtful. The stimulus of fermented or spirituous liquors is not necessary to the young and vigorous; and, when much employed, impairs the tone of the system. These liquors, therefore, are to be avoided, except so far as custom and the declining state of the system may have rendered them necessary. For preventing or moderating the regular gout, water is the only proper drink.

" I will only say, that I imagine it is the quantity of wine chiefly which has this effect, and if taken moderately, it will scarcely be hurtful by its stimulus, and a total abstinence is necessary only in a few cases. But no doubt, something arises from the quality of wines also: wines are acescent, and may afford a preternatural quantity of acid in our stomachs: therefore, such wines are certainly to be avoided. To the moderate stimulus of a small quantity of wine, not thus acescent, there can be no objection. There are certain stomachs, however, (of which I have seen several instances,) that cannot bear any wine, and in which Madeira will become as acescent as Cyder: in such cases, it is obvious that wine must, on account of the stomach, be strictly avoided, and if some stimulus is necessary, it is safer to employ spirits not capable of further fermentation. These have been too much used by gouty persons, and brandy and water has become a frequent drink among persons whose stomachs are impaired: but it is an extremely dangerous practice, and on many occasions becomes a habit. People may begin and find a sufficient stimulus in a very small quantity of spirits; but the quantity must be increased, and we have many instances where people have come to take the plain spirits in considerable quantity. This habit therefore, should not be introduced without great necessity: whenever it comes to be the case, it certainly impairs, like any other stimulus, the tone of the stomach, and brings on the very state which we wish to obviate.

" With regard to the management of sleep and waking, as belonging to the same head, it has been long a rule of experience, that the sleep of gouty persons should be early and never protracted long. Going to bed early proceeds on the same principle as avoiding meat suppers, viz. that the evening fever which attacks the constitution be not irritated by watching, or the exercise of it, and that therefore this is the time, which nature has devoted to sleep. With regard to the other point, that it should never be protracted long, it turns upon the view of the plethoric state, which long sleep both favours and promotes."

DLII. With respect to an abstemious course, it has been supposed, that an abstinence from animal food and fermented liquors, or the living upon milk and farinacea alone for the space of one year, might be sufficient for a radical cure of the gout: and it is possible that, at a certain period of life, in certain circumstances of the constitution, such a measure might answer the purpose. But this is very doubtful; and it is more probable that the abstinence must, in a great measure, be continued, and the milk-diet be persisted in, for the rest of life. It is well known, that several persons who had entered on an abstemious course, and had been thereby delivered from the gout, have, however, upon returning to their former manner of full living, had the disease return upon them with as much violence as before, or in a more irregular and more dangerous form.

DLIII. It has been alleged, that, for preventing the return of the gout, blood-letting, or scarifications of the feet, frequently repeated, and at stated times, may be practised with advantage; but of this I have had no experience.

DLIV. Exercise and abstinence are the means of avoiding the plethoric state which gives the disposition to the gout; and are therefore the means proposed for preventing paroxysms, or at least for rendering them less frequent and more moderate. But many circumstances prevent the steadiness necessary in pursuing these measures: and therefore, in such cases, unless great care be taken to avoid the exciting causes, the disease may frequently return; and, in many cases, the preventing of paroxysms is chiefly to be obtained by avoiding those exciting causes enumerated in DIV. The conduct necessary for avoiding them, will be sufficiently obvious to persons acquainted with the doctrines of the Hygieine, which I suppose to have been delivered in another place.

"I have mentioned, as exciting causes of gout, cold, intemperance in drink, and excess in venery; in the fourth place I would mention *study*,—any close or intense application of the mind, whether to business or study more strictly so called. We have a remarkable instance of this in Dr. Sydenham, who tells us that when he was writing upon the gout, he was interrupted by his application producing a fit of the disease. Such application to study is not very frequent in this indolent age; but how it is to be managed in the case of men in business, and in persons necessarily devoted to study, will be sufficiently obvious; and it is unnecessary to say much upon this subject. I chiefly introduced the whole head, in order to say, that though in certain cases it may be difficult to avoid study, there is one kind for which there can be no plea of necessity, viz. *Gaming;* for it is evident, that many games require intense study. People are apt to deceive themselves in imagining that the games of chance are not to be considered in this light; but I say that gaming is constantly attended with a close attention of the mind, and anxiety liable to occasion frequent vicissitudes of passion, and generally accompanied by much watching: it is therefore a study of the most pernicious kind. It leads me to take notice of the fifth occasional cause of gout—the passions of the mind: How they are to be avoided I must leave to the philosophers, or, if you will, to the divines."

DLV. A due attention in avoiding those several causes (DIII. DIV.), will certainly prevent fits of the gout; and the taking care that the exciting causes be never applied in a great degree, will certainly render fits more moderate when they do come on. But, upon the whole, it will appear, that a strict attention to the whole conduct of life, is in this matter necessary; and, therefore, when the predisposition has taken place, it will be extremely difficult to avoid the disease.

DLVI. I am indeed firmly persuaded, that, by obviating the predisposition, and by avoiding the exciting causes, the gout may be entirely prevented: but as the measures necessary for this purpose will, in most cases, be pursued with difficulty, and even with reluctance, men have been very desirous to find a medicine which might answer the purpose without any restraint on their manner of living. To gratify this desire, physicians have proposed, and, to take advantage of it, empirics have feigned, many remedies, as we have already observed. Of what nature several of these remedies have been, I cannot certainly say; but, of those which are unknown, we conclude, from their having been only of temporary fame, and from their having soon fallen into neglect, that they have been either inert or pernicious, and therefore I make no inquiry after them; and shall now remark only upon one or two known remedies for the gout which have been lately in vogue.

DLVII. One of these is what has been named in England the Portland Powder. This is not a new medicine, but is mentioned by Galen, and, with some little variation in its composition, has been mentioned by the writers of almost every age since that time. It appears to have been at times in fashion, and to have again fallen into neglect; and I think that this last has been owing to its having been found to be, in many instances, pernicious. In every instance which I have known of its exhibition for the length of time prescribed, the persons who had taken it were indeed afterwards free from any inflammatory affection of the joints: but they were affected with many symptoms of the atonic gout; and all, soon after finishing their course of the medicine, have been attacked with apoplexy, asthma, or dropsy, which proved fatal.

"It is possible that several persons may have taken the Portland powder, and other bitters, with seeming great advantage; but I have not had opportunity to know the sequel of the whole of such persons' lives, so as to say positively how far in any case the cure continues steady for a life of some years after; or what accidents happened to their health.

"But I have had occasion to know, or to be exactly informed, of the fate of nine or ten persons who had taken this medicine for the time prescribed, which is two years. These persons had been liable, for some years before, to have a fit of a regular or very painful inflammatory gout, once at least, and frequently twice in the course of a year: but after they had taken the medicine for some time, they were quite free from any fit of inflammatory gout and, particularly when they had completed the course prescribed, had never a regular fit, or any inflammation of the extremities for the rest of their life.

"In no instance, however, that I have known, was the health of these persons tolerably entire. Soon after finishing the course of their medicine, they became valetudinary in various shapes, and particularly were much affected with dyspeptic, and what are called nervous complaints, with lowness of spirits. In every one of them, before a year had passed, after finishing the course of the powders, some hydropic symptoms appeared, which gradually increasing in the form of hydrothorax or ascites, especially the latter joined with anasarca, in less than two, or at most three years, proved fatal. These accidents happening to persons of some rank, became very generally known in this country, and have prevented all such experiments since.

"The Aristolochia, which has been long commended as a cure of gout, makes a considerable part of the Portland powder, and has been often employed by itself in the same manner as that powder, to be taken every day for a length of time. It has the same power of preventing fits of the gout, and commonly with the same consequences, of which many instances are recorded by the physicians of Germany. (See *Werlhoff Cautiones Medicæ.)—M. M.*

DLVIII. Another remedy which has had the appearance of preventing the gout, is an alkali in various forms, such as the fixed alkali, both mild and caustic, lime-water, soap, and absorbent earths. Since it became common to exhibit these medicines in nephritic and calculous cases, it has often happened that they were given to those who were at the same time subject to the gout; and it has been observed, that under the use of these medicines, gouty persons have been longer free from the fits of their disease. That, however, the use of these medicines has entirely prevented the returns of gout, I do not know; because I never pushed the use of those medicines for a long time, being apprehensive that the long-continued use of them might produce a hurtful change in the state of the fluids.

DLIX. With respect to preventing the gout, I have only one other remark to offer. As the preventing the gout depends very much on supporting the tone of the stomach, and avoiding indigestion; so costiveness, by occasioning this, is very hurtful to gouty persons. It is therefore necessary for such persons to prevent or remove costiveness, and by a laxative medicine, when needful; but it is at the same time proper, that the medicine employed should be such as may keep the belly regular, without much purging. Aloetics, rhubarb, magnesia alba, or flowers of sulphur, may be employed, as the one or the other may happen to be best suited to particular persons.

“ I would say, that, if the system is remarkably full, purgatives may take off a part of the predisposition to the disease; but if the system is not in this state, or if there is any evident debility, certainly violent purging would be extremely pernicious, not only with regard to the system in general, but more especially with regard to the alimentary canal, upon the tone of which so much depends in gout. I have often had occasion to say, that evacuations in general are not the best means of obviating plethora; with respect to the whole system, therefore, purging cannot be advisable: only, in certain circumstances of the alimentary canal, it may prove useful to remove the crudities occurring and stagnating there, and in cases of certain congestions, to open the various excretories of that canal.

“ Any crudities remaining in the stomach may increase the atony which prevails there, and contribute to bring on the disease; and where we can perceive such a cause, vomiting, by evacuating these, may obviate the fits; moderate vomiting, not frequently repeated, does rather contribute to strengthen the stomach by that exercise. But the employment of it to obviate every indigestion, is often a hurtful practice, and I know that the tone of the stomach may be entirely destroyed by the too frequent use of emetics. In favour of vomiting used with discretion, I would further say, that its operation is not confined to the stomach, but that it powerfully determines to the surface of the body, and supports the perspiration which is necessary to obviate the gout.

“ Sweating, by determining to the extreme vessels, may seem more adapted to obviate the gout than purging; but, if urged by heating remedies, or a heating regimen, it may readily do harm by increasing the inflammatory diathesis in the system; and we think it is attended with this danger, that it exposes the parts subject to sweating to be afterwards weakened, and more liable to the operation of cold.”

DLX. These are the several measures (from DXLII. to DLIX.) to be pursued in the intervals of the paroxysms; and we are next to mention the measures proper during the time of them.

DLXI. As during the times of paroxysms the body is in a feverish state, no irritation should then be added to it; and every part, therefore, of the antiphlogistic regimen (CXXX. to CXXXI.), except the application of cold, ought to be strictly observed.

Another exception to the general rule may occur when the tone of the stomach is weak, and when the patient has been before much accustomed to the use of strong drink; for then it may be allowable, and even necessary to give some animal food, and a little wine.

DLXII. That no irritation is to be added to the system during the paroxysms of gout, except in the cases mentioned, is entirely agreed upon among physicians; but it is a more difficult matter to determine whether, during the time of paroxysms, any measures may be pursued to moderate the violence of reaction and of inflammation. Dr. Sydenham has given it as his opinion, that the more violent the inflammation and pain, the paroxysms will be the shorter, as well as the interval between the present and next paroxysm longer: and, if this opinion be admitted as just, it will forbid the use of any remedies which might moderate the inflammation; which is, to a certain degree, undoubtedly necessary for the health of the body. On the other hand, acute pain presses for relief, and, although a certain degree of inflammation may seem absolutely necessary, it is not certain but that a moderate degree of it may answer the purpose; and it is even probable, that, in many cases, the violence of inflammation may weaken the tone of the parts, and thereby invite a return of paroxysms. It seems to me to be in this way, that, as the disease advances, the paroxysms become more frequent.

DLXIII. From the last considerations, it seems probable, that, during the time of paroxysms, some measures may be taken to moderate the violence of the inflammation and pain; and particularly, that, in first paroxysms, and in the young and vigorous, blood-letting at the arm may be practised with advantage: but I am persuaded that this practice cannot be repeated often with safety; because blood-letting not only weakens the tone of the system, but may also contribute to produce plethora. I believe, however, that bleeding by leeches on the foot, and upon the inflamed part, may be practised and repeated with greater safety; and I have known instances of its having been practised with safety, to moderate and shorten paroxysms; but how far it may be carried we have not had experience enough to determine.

"From the opportunity which I have had of seeing vomiting frequently practised in the case of the gout, I know, that in the beginning of the fit it is generally of service, as the atony which has prevailed, and the indigestion which has preceded it, are liable to continue more or less; and some fits of the gout are attended with a constant nausea and sickness at stomach, and nothing gives such relief in their case as moderate vomiting."

DLXIV. Besides blood-letting and the antiphlogistic regimen, it has been proposed to employ remedies for moderating the inflammatory spasm of the part affected, such as warm-bathing and emollient poultices. These have sometimes been employed with advantage and safety; but at other times have been found to give occasion to a retrocession of the gout.

DLXV. Blistering is a very effectual means of relieving and discussing a paroxysm of the gout; but has also frequently had the effect of rendering it retrocedent.

DLXVI. The stinging with nettles I consider as analogous to blistering; and I think it probable that it would be attended with the same danger.

DLXVII. The burning with moxa, or other substances, I consider as a remedy of the same kind. I have had, indeed, no evidence of this proving hurtful; but neither have I had any proper evidence of its having proved a radical cure.

DLXVIII. Camphire, and some aromatic oils, have the power of allaying the pain, and of removing the inflammation from the part affected: but these remedies commonly make the inflammation only shift from one part to another, and therefore with the hazard of its falling upon a part where it may be more dangerous; and they have sometimes rendered the gout retrocedent.

DLXIX. From these reflections (DLXIV. *et. seq.*) it will appear, that some danger must attend every external application to the parts affected during a paroxysm; and that therefore the common practice of committing the person to patience and flannel alone, is established upon the best foundation.

DLXX. Opiates give the most certain relief from pain; but, when given in the beginning of gouty paroxysms, they occasion these to return with greater violence. When, however, the paroxysms shall have abated in their violence, but still continue to return, so as to occasion painful and restless nights, opiates may be then given with safety and advantage, especially in the case of persons advanced in life, and who have been often affected with the disease.

"The frequent use of opium, like intemperance in drinking, weakens the system; and, therefore, while it alleviates one paroxysm, it may more certainly provide for the recurrence of the next. I have known several gouty patients, instead of opium, use, what is quite analogous to it, strong punch or wine; several discussed their fits more quickly, and relieved them greatly by the free use of strong drink as soon as they felt the swellings come on: but I am certain that they did not in the least degree prevent the frequent recurrence; they were remarkably subject to gout, and frequently affected with it; therefore I believe that this remedy may give some present relief, though it is in the main mischievous."

DLXXI. When, after paroxysms have ceased, some swelling and stiffness shall remain in the joints, these symptoms are to be discussed by the diligent use of the flesh-brush.

DLXXII. Purging, immediately after a paroxysm, will be always employed with the hazard of bringing it on again.

DLXXIII. I have now finished what has occurred to be said upon the means of preventing and curing the regular gout; and shall now consider its management when it has become irregular; of which, as I have observed above, there are three different cases.

DLXXIV. In the first case, which I have named the Atonic Gout, the cure is to be accomplished by carefully avoiding all debilitating causes; and by employing, at the same time, the means of strengthening the system in general, and the stomach in particular.

DLXXV. For the avoiding debilitating causes, I must refer to the doctrines of the Hygieine, as in DLIV.

DLXXVI. For strengthening the system in general, I must recommend frequent exercise on horseback, and moderate walking. Cold bathing also may answer the purpose, and be safely employed, if it appear to be powerful in stimulating the system, and be not applied when the extremities are threatened with any pain.

For supporting the tone of the system in general, when threatened with atonic gout, some animal food ought to be employed, and the more acescent vegetables ought to be avoided. In the same case, some wine also may be necessary; but it should be in moderate quantity, and of the least acescent kinds; and, if every kind of wine shall be found to increase the acidity of the stomach, ardent spirits and water must be employed.

DLXXVII. For strengthening the stomach, bitters and the Peruvian bark may be employed; but care must be taken that they be not constantly employed for any great length of time. (Compare DLVII.)—"Upon many occasions bitters and the bark have been extremely useful in supporting the tone of the stomach; but, by frequent practice, I have reason to conclude that the same atony was thus finally brought on as effectually as by the more formal use of these remedies; I constantly therefore enjoin my patients and friends, never to use bitters or barks for more than a fortnight at once; and if the symptoms are relieved sooner, not to return to their use till after a considerable interval; and to confine their use to a particular season of the year, when the patient knows that his gout is more liable to come on, and when he begins to feel some of the atonic symptoms."

The most effectual medicine for strengthening the stomach is iron, which may be employed under various preparations; but, to me, the best appears to be the rust in fine powder, which may be given in very large doses.—"I have had no opportunity of observing whether chalybeates may not likewise hurt the tone of the stomach in time; but there is less danger of the patient so readily running into excess in their use, and we are certain of their immediate good effects upon many occasions, from experience."

For supporting the tone of the stomach, aromatics may be employed; but should be used with caution, as the frequent and large use of them may have an opposite effect; and they should therefore be given only in compliance with former habits, or for palliating present symptoms.

When the stomach happens to be liable to indigestion, gentle vomits may be frequently given; and proper laxatives should be always employed to obviate, or to remove costiveness.

DLXXVIII. In the atonic gout, or in persons liable to it, to guard against cold is especially necessary; and the most certain means of doing this is, by repairing to a warm climate during the winter season.—"I make a separate title of the avoiding of cold, because it not only comprehends avoiding every thing that checks the perspiration, but having recourse to every thing that may promote it, viz. flannel, warm stockings, and particularly a warm climate. Warm bathing may dispose, by even the degree of relaxation, to a proportional sinking of the perspiration, especially if not practised in a warm climate, and with precaution against the future application of cold. I cannot help repeating, that this has been one of the external applications (DLXIV—DLXIX) which I mentioned before as being injurious."

DLXXIX. In the more violent cases of the atonic gout, blistering the lower extremities may be useful; but that remedy should be avoided when any pain threatens the extremities.—"I have known blisters employed to no purpose; but I have known them hurtful by preventing the inflammation which would otherwise have come on in the adjoining parts, which is the only efficacious means of relieving the atonic gout." In persons liable to the atonic gout, issues may be established in the extremities, as, in some measure, a supplement to the disease.

DLXXX. A second case of the irregular gout, is that which I have named the Retrocedent. When this affects the stomach and intestines, relief is to be instantly attempted by the free use of strong wines joined with aromatics, and given warm; or if these shall not prove powerful enough, ardent spirits must be employed, and are to be given in a large dose. In moderate attacks, ardent spirits impregnated with garlic, or with asafœtida may be employed; or, even without the ardent spirits, a solution of asafœtida with the volatile alkali may answer the purpose. Opiates are often an effectual remedy, and may be joined with aromatics, as in the Electuarium Thebaicum; or they may be usefully joined with volatile alkali and camphire. Musk has likewise proved useful in this disease.

When the affection of the stomach is accompanied with vomiting, this may be encouraged by taking draughts of warm wine, at first with water, and afterwards without it; having at length recourse, if necessary, to some of the remedies above mentioned, and particularly the opiates.

In like manner, if the intestines be affected with diarrhœa, this is to be at first encouraged, by taking plentifully of weak broth; and when this shall have been done sufficiently, the tumult is to be quieted by opiates.

"I have said that there is another case of irregular gout, called the retrocedent, and it is this, that the inflammatory state has taken place to a certain degree and for a certain time, but suddenly ceasing in the joints, it is immediately followed by various atonic or spasmodic affections of the internal parts. So far as I can perceive from observation or reading, the symptoms here are much the same as in other cases, and it is uncertain when it will attack the head, thorax, or abdominal viscera, but it is with the same symptoms that I mentioned before: only what I think deserves our farther observation is, that the symptoms then appearing are commonly more violent; but this is to be expected from hence, that the atony taking place is more considerable, as the tone of the whole of the part had been more excited before, and though, in point of theory, I cannot undertake to explain it clearly, yet it appears to me, that there is certainly an atony propagated from the extremities to the origin of the nerves, and thereby inducing apoplexy, syncope, cramp, palsy, and death.

"When the case of retrocedent gout occurs, and the symptoms are of a threatening kind, and extremely violent, we trust to the application of stimuli, joined however to antispasmodics: the chief are volatile alkalies, as a stimulus, and perhaps as an antispasmodic, and opium as operating in both ways, camphire and musk. A still more common remedy, is the use of ardent spirits applied to the stomach; it is remarkable that its dose must be very large: I have known an instance of a person taking two pounds of brandy, or strong rum, to produce a cure in this case: persons then bear it with impunity, who would have been thrown into a temporary fever by the fourth part of the quantity taken at any other time. I need not speak of some analogies of various affections of the nervous system, which will bear unusual and uncommonly large doses of opium, such as tetanus; and perhaps that is to be attended to in other cases. It appears from hence, that there is something in the system which resists the usual powers of opium, or any such narcotic; and a similar circumstance occurs in the case of spirits employed in the gout: whereas in ordinary health four ounces of spirits would have given some degree of intoxication, and double that quantity would have effectually intoxicated them, persons in this fit will take double that quantity without any appearance of intoxication, and till the pain is removed out of the stomach, they find no such symptoms; but as soon as it has overcome the violence of the spasm, an intoxication is immediately induced, and a stupor comes on, and in many cases we would be extremely puzzled how to measure the doses, were it not that circumstance: but so long as we find that it does not take any effect upon the nervous system in producing more or less of the symptoms of intoxication, we are still safe in pushing the dose further."

In a case of gout of the stomach, I have by degrees gone to the dose of ten grains of opium, twice a day: and when the disease was overcome, the dose of opium was gradually diminished, till in the course of two or three weeks it was none at all; and by all this no harm appeared to be done to the system.

I can vouch for the powers of musk in several circumstances of the gout. The case given by Mr. Pringle, in the Physical and Literary Essays, Vol. II. Art. XII. is very much in favour of its virtues; and in several circumstances of the gout attacking the stomach, I have found it relieved by large doses of musk. I have known an instance of headach and delirium, arising from gout, being cured by it; and in the same person I had repeated instances of its powers. This person being frequently affected with the gout, was liable to have it retrocedent, and affecting the stomach, lungs, and particularly the head, in the manner above-mentioned; and in many of these instances, it was very suddenly relieved by large doses of musk, or by these at least repeated after short intervals; though at length the great irregularities of this patient brought the disease into a state that resisted all remedies.—*M.M.*

DLXXXI. When the retrocedent gout shall affect the lungs, and produce asthma, this is to be cured by opiates, by antispasmodics, and, perhaps, by blistering on the breast or back.

DLXXXII. When the gout, leaving the extremities, shall affect the head, and produce pain, vertigo, apoplexy, or palsy, our resources are very precarious. The most probable means of relief is blistering the head; and if the gout shall have receded very entirely from the extremities, blisters may be applied to these also. Together with these blisterings, aromatics, and the volatile alkali, may be thrown into the stomach.

DLXXXIII. The third case of the irregular gout is what I have named the Misplaced, that is, when the inflammatory affection of the gout, instead of falling upon the extremities, falls upon some internal part. In this case, the disease is to be treated by blood-letting, and by such other remedies as would be proper in an idiopathic inflammation of the same parts.

"What I call the *misplaced* is more immediately connected with the regular gout: it is where an inflammatory state takes place, and that inflammation is not in the joints, but in some of the internal parts, whose functions are of more immediate importance. What I have to say with regard to it, is, that as far as writers upon this subject have been clear and distinct—and I have been told that they are not so always—that this case of misplaced gout is attended with the same symptoms as attend the idiopathic inflammation of the same viscera; and so we have the *peripneumonia arthritica* of Sydenham and Musgrave; and at the same time we learn that it is attended with all the ordinary symptoms of inflammatory peripneumony; and as that is generally and universally the case, I can discuss the matter by further adding, that they also agree in this, that it is to be treated by the same remedies, chiefly by venesection. I have given the difficulties which occur with regard to venesection in regular gout (DLXIII.); perhaps somewhat of the same doubts might occur here; but we are not thus to deliberate, we are under the strongest temptation and necessity of hazarding all the consequences of bleeding with regard to the constitution in general, when life is immediately at stake."

DLXXXIV. Whether the translation so frequently made from the extremities to the kidneys, is to be considered as an instance of the misplaced gout, seems, as we have said before, uncertain; but I am disposed to think it something different; and therefore am of opinion, that, in the Nephralgia Calculosa, produced upon this occasion, the remedies of inflammation are to be employed no farther than they may be otherwise sometimes necessary in that disease, arising from other causes than the gout.

BOOK III.—EXANTHEMATA, OR ERUPTIVE FEVERS.

DLXXXV. The diseases comprehended under this title, which make the third Order of Pyrexiæ in our Nosology, are in general such as do not arise but upon occasion of a specific contagion applied, which first produces fever, and afterwards an eruption upon the surface of the body; and which diseases, for the most part, affect persons but once in the course of their lives.

DLXXXVI. Whether the character of the order may be thus limited, or if the order may be allowed to comprehend also the eruptive fevers produced by a matter generated in the body itself, and likewise those cases of eruption which do not depend upon contagion, or upon a matter generated before the fever, but upon a matter generated in the course of the fever, I am not ready to determine. Of the diseases enumerated by the Nosologists, as Exanthemata, there are certainly three different kinds, which may be distinguished by the circumstances mentioned in this and the preceding paragraph. Of the first kind are the Smallpox, the Chickenpox, the Measles, the Scarlet Fever, and the Plague. Of the second kind seems to be the Erysipelas; and of the third kind I judge the Miliaria and Petechia to be. But as I am not sufficiently confident in the facts which should support these distinctions, or which would enable us to apply them in all cases, I go on in this book to treat of almost all the Exanthemata enumerated by preceding Nosologists, with only some difference in the arrangement from what it was in my former editions.

"I must here observe, that I find many difficulties in Nosology, and nowhere greater than in this place. I am truly not satisfied with this order. This may be considered as an objection to Nosology in general; but it merely shews that the history of diseases, as it now stands, is far from being complete and accurate; and I say that it is the attempt at Nosology, which chiefly serves to point out these doubts, to start questions, and to direct our further observations; without it the matter would have remained in the uncertainty, confusion, and obscurity in which it has continued for ages past.

"In the first place, we must attend to the character of the order. I find it difficult in this character to distinguish Exanthemata from the two preceding orders—Febres and Phlegmasiæ. We may seem to distinguish them from Fevers, by this, that they are steadily and constantly attended by a topical affection, but we shall find this in some cases doubtful. I find that there are Phlegmasiæ which seemingly arise at some distance of time after the symptoms of fever are formed; but, on the other hand, there are Exanthemata which arise before the fever, or at least along with it.—These are the doubts which still remain with regard to the genera comprehended in this order. But I can do no better than take what is the most common case; and suppose that in the Phlegmasiæ there is, from the beginning, a topical inflammation, which generally is not the consequence, but the cause of the fever: and, upon the other hand, of the Exanthemata we would in general give the idea, that their cause is not topical, and does not act topically, but that there is a particular matter, or whatever you please to call it, diffused over the system, and applied to it more generally; and that, in consequence of an action upon the nervous system analogous to that of the cause of fever, a fever is produced, and only in consequence of that fever an eruption.

"It is difficult, however, to decide, according to this view, what genera are properly comprehended under the order of Exanthemata; we shall find presently that, with regard to several, the matter is very doubtful. We can point out one clear case of Exanthema; for example, where we certainly know that a contagious matter is often introduced by art. We observe that this first produces a fever, and that only after a certain determined duration of the fever, an eruption is produced, steadily and constantly of one particular kind. In this circumstance, nobody doubts that this is an Exanthema, to be distinguished equally on the one hand from fever, and on the other from phlegmasiæ. But it may happen that there is, or at least that we know of, no specific contagion; or supposing that there are marks of contagion, it may produce a fever of no determined period, and an eruption not strictly of a determined kind; we may perceive, on the contrary, or at least suspect, that the eruption depends on particular circumstances of the fever, and that the fever thus produced by contagion is not always necessarily attended by an eruption. We can apply this to the miliary eruption and several others: but it suffices now to state it generally; we shall consider it more particularly afterwards. This is what we would more properly call a *febris cum exanthemate*, the fever accidentally having an eruption as a symptom.

"There certainly are some species of both these kinds of eruptions, sufficiently well marked; but there are others in which there is an uncertainty and ambiguity with regard to the order. I have this further observation to make, that those exanthemata which are most certainly idiopathic, are most certainly contagious; and they are contagious with this singular property, that they affect a person but once in the course of his life. I am not to be disturbed with repeated smallpox and measles: for this case is so rare, that we may take the other as the general position. But I am extremely doubtful whether this can be applied as a character of the order.

"These are some reflections with regard to the establishment of this order. With regard to the several genera, a variety of circumstances are employed as characters, which it is proper to notice here in a general manner.

"*First*, We endeavour to distinguish the several genera of Exanthemata by the *species* of the fever which belongs to them, excited by the contagion or other causes; it is sometimes a synocha, sometimes a typhus, and sometimes what is properly called synochus. With regard to several, there is somewhat steady in this matter as a foundation for the character, but I own, that perhaps in no case it is universal, and therefore to be considered as a pathognomonic, essential and inseparable part of the character. For instance, there are certain cases of the plague which are attended by a synochus, and what may almost be termed a synocha; there are, on the other hand, cases of smallpox and measles attended by typhus. We give what is most general, nothing is universal; and therefore take notice, what is not universal can hardly be taken as pathognomonically characteristic.

"*Secondly*, The determined *duration* of the fever, and the fixed period of the eruption, also afford us a very good part of our character; at least we find that both of these are very steady and of surprising uniformity. In many of the genera, the nicety of this part of the character goes so far, that whenever it does not take place positively, it gives doubt whether there is any thing like specific contagion, whether there is any proper Exanthema.

"*Thirdly*, I have to observe, that the effects of the contagion, where it is known, appear different with regard to the *place* to which its operation is determined. It does not at first, but always at length, operate more or less topically. The determination may be said to be of three kinds:—The first is that to the skin, which is the most common and universal, and which almost necessarily belongs to the idea of an Exanthema.—The second is that to the mucous glands, more remarkably to those of the fauces and bronchiæ, but as I judge, also to those of the intestines, producing diarrhoea. It is sufficiently evident, that these are determinations of the contagion. We have what may be called primary diseases, anginæ and catarrhs, with these determinations steadily and constantly: now these are very commonly accompanied by some Exanthema. On the other hand, some Exanthemata, which are also to be considered as in the strictest sense primary diseases, are almost inseparable from a determination to the fauces and bronchiæ, and in many cases it comes to be a question, which of these is to be considered as the primary disease. Thus, I say, it might be doubted, whether the Angina gangrænosa ought not to be considered as an Exanthema; and whether the scarlet angina, when very universal and common, may not be considered as strictly an exanthematous angina.—A third determination, to which we must attend, is that to the lymphatic glands, producing buboes and parotides. When these arise alone, without any exanthematic appearance, or in diseases not commonly attended by such, there may be a question whether they are to be considered as a species of exanthema; but we are led to class them together, because they especially occur in diseases which arise from contagion, and are very commonly combined with other circumstances which are very certainly exanthematic. If only buboes occurred in the plague, we might entertain these doubts; but as, at the same time, anthraces and other symptoms of Exanthema are present, we must presume that both arise from one common contagion, and that the bubo is only one variety of this determination.

"I go on to observe, that Exanthemata are, especially in their several genera, distinguished by the nature of the eruption. The matter determined to the skin and effused there, is manifestly of three kinds: first, it is serum, which is naturally and spontaneously changed into pus, as is the case in smallpox; secondly, the serum appears at first, but is not naturally and spontaneously changed into pus; such is the case in Varicella, and in Pemphigus so far as admitted among the Exanthemata: it is a very rare appearance that in these diseases there is any approach towards the change into pus. A third case is, where the matter is not collected into any sensible portions, so that we could give it the appellation of serum: where, indeed, it is not manifestly fluid, but appears in a number of very small papillæ; but as in most cases these end in desquamation, we have reason to suspect that a matter was effused, which, either in consequence of exudation affords these scales, or, as we know in other cases, separates the cuticle, and makes it fall off. We cannot say any thing positive with regard to the matter here effused; but if it is effused, it is by certain circumstances divided into small and insensible portions, thus distinguishing, for instance, Scarlatina from other Exanthemata.

"*Fourthly*, A part of the generic character of Exanthemata may, in some cases at least, be taken from the part which they occupy, from the limits they have, and from the extent they admit of. Thus, Erysipelas, if considered as an Exanthema, is distinguished as *solitaria* by Linnæus, and properly, for thereby it differs from almost all the others, whose topical affections are more numerous. With regard to those which are more numerous, a curious circumstance is this, that most of them generally appear more on the face than on any other part of the body; while there is one eruption that has been commonly reckoned among Exanthemata, viz. the miliary eruption, which, although very numerous upon every other part of the body, extremely rarely appears on the face.

"All these particulars will be touched again, when we consider the particular genera; but you will find some use from this general view of them in pointing out a comparison."

CHAP. I.—OF THE SMALLPOX.

DLXXXVII. The smallpox is a disease arising from a contagion of a specific nature, which first produces a fever, and, on the third or fourth day thereof, produces an eruption of small red pimples. These are afterwards formed into pustules, containing a matter, which, in the course of eight days from the time of the eruption, is changed into pus. After this, the matter dries, and falls off in crusts.

"I have in my definition said, '*tertio die incipit et quinto die finitur eruptio.*' To persons conversant with the writings of Dr. Sydenham, this may appear odd, as Sydenham has said that the eruption appears on the fourth day of the disease, and I have ventured to say, without exception, that it is on the third day. In a thousand instances which I have seen, the eruption has not been entirely delayed to the fourth day. I very lately, in the clinical lectures, treated of a patient in the smallpox, who gave me an opportunity to explain this matter. The eruption did not appear till the fourth day, in the common reckoning of physicians—the disease attacked on the 14th day of the month, and the eruption appeared on the 17th: now, if the disease made its attack any time before noon, the reckoning of the physicians would be correct—the 17th would be the fourth day; but when it attacks in the afternoon, then, I say, the first day is to be considered as finished only on the evening of the second, and the third day of the disease will extend to the evening of the 17th; and, as the eruption was perceived on the morning of that day, it was truly only the third day of the disease. It may be further observed, that this is founded upon another consideration, viz. that the motions of the smallpox are periodical and regular, and proceed on the tertian type:—the eruptive fever continues for forty-eight hours; on the third day the eruption takes place, beginning, I believe, commonly soon after the forty-eight hours; and it takes another third period, to finish what I call the inflammatory state."

DLXXXVIII. This is a general idea of the disease; but there are two particular forms or varieties of it, well known under the appellations of the *Distinct* and *Confluent*, which require to be specially described.

DLXXXIX. In the former, or the distinct smallpox, the eruptive fever is moderate, and appears to be evidently of the inflammatory kind, or what we name a Synocha. It generally comes on about mid-day, with some symptoms of a cold stage, and commonly with a considerable languor and drowsiness. A hot stage is soon formed, and becomes more considerable on the second and third days. During this course, children are liable to frequent startings from their slumbers; and adults, if they are kept a-bed, are disposed to much sweating. On the third day, children are sometimes affected with one or two epileptic fits. Towards the end of the third day, the eruption commonly appears, and gradually increases during the fourth; appearing first upon the face, and successively on the inferior parts, so as to be completed over the whole body on the fifth day.

From the third day, the fever abates; and against the fifth, it entirely ceases. The eruption appears first in small red spots, hardly eminent, but by degrees rising into pimples. These are generally upon the face in small number; but even when more numerous, they are separate and distinct from one another. On the fifth or sixth day, a small vesicle, containing an almost colourless or whey-coloured fluid, appears upon the top of each pimple. For two days, these vesicles increase in breadth only, and there is a small hollow pit in the middle, so that it is only against the eighth day that they are raised into the spheroidical pustules.

These vesicles or pustules, from their first formation, continue to be surrounded with an exactly circular inflamed margin, which, when the pustules are numerous, diffuses some inflammation over the neighbouring skin, so as to give somewhat of a damask rose colour to the spaces between the pustules. As the pustules increase in size, if they be numerous on the face, against the eighth day the whole of the face becomes considerably swelled; and in particular the eye-lids are so much swelled as entirely to shut the eyes.

As the disease proceeds, the matter in the pustules becomes by degrees more opaque and white, and at length of a yellowish colour. On the eleventh day, the swelling of the face is abated, and the pustules seem quite full. On the top of each, a darker spot appears; and at this place the pustule, on the eleventh day or soon after, is spontaneously broken, and a portion of the matter oozes out, in consequence of which, the pustule is shrivelled, and subsides, while the matter, oozing out, dries, and forms a crust upon its surface. Sometimes a little only of the matter oozes out; and what remains in the pustule becomes thick, and even hard. After some days, both the crusts and the hardened pustules fall off, leaving the skin which they covered of a brown red colour; and it is only after many days that the skin in these places resumes its natural colour. In some cases, where the matter of the pustules has been more liquid, the crusts formed by it are later in falling off, and the part they covered suffers some desquamation, which leaves in it a small pit or hollow.

This is the course of things on the face; and successively, the pustules on the rest of the body take the same. The matter of the pustules, on the arms and hands, is frequently absorbed, so that, at the height of the disease, these pustules appear as empty vesicles. On the tenth and eleventh days, as the swelling of the face subsides, a swelling arises in the hands and feet; but which again subsides as the pustules come to maturity.

When the pustules on the face are numerous, some degree of pyrexia appears on the tenth and eleventh days, but disappears again after the pustules are fully ripened, or perhaps remains in a very slight degree till the pustules on the feet have finished their course. It is seldom that in the distinct small-pox the fever continues longer.

When the pustules on the face are numerous, some uneasiness in the throat, with a hoarseness of the voice, comes on upon the sixth or seventh day, and a thin liquid is poured out from the mouth. These symptoms increase with the swelling of the face; and the liquids of the mouth and throat becoming thicker, are more difficultly thrown out. There is, at the same time, some difficulty of swallowing, so that liquids taken in to be swallowed, are frequently rejected, or thrown out by the nose. But all the affections of the fauces abate as the swelling of the face subsides.

DXC. In the other form of smallpox, or what is called the Confluent, the course of the disease is in general the same with what we have described; but the symptoms of every stage are more violent, and several of the circumstances are different.

In particular, the eruptive fever is more violent; the pulse is more frequent and more contracted, approaching to that state of pulse which is found in the typhus; the coma is more considerable, and there is frequently a delirium. Vomiting, also, is a common symptom, especially at the coming on of the disease. In very young infants, epileptic fits are sometimes frequent in the first days of the disease, and sometimes prove fatal before any eruption appears; or they usher in a very confluent and putrid smallpox.

DXCI. The eruption appears more early on the third day, and it is frequently preceded or accompanied with an erysipelatous efflorescence. Sometimes the eruption appears in clusters, like that of the measles. When the eruption is completed, the pimples are always more numerous upon the face, and at the same time smaller and less eminent. After the eruption, the fever suffers some remission, but never goes off entirely; and after the fifth or sixth day, it again increases, and continues considerable through the remaining course of the disease.

The vesicles formed on the tops of the pimples appear sooner; and while they increase in breadth, do not retain a circular, but are every way of an irregular figure. Many of them run into one another, insomuch, that very often the face is covered rather with one vesicle than with a number of pustules. The vesicles, so far as they are anywise separated, do not arise to a spheroidical form, but remain flat, and sometimes the whole of the face is of an even surface. When the pustules are in any measure separated, their circumference is not bounded by an inflamed margin, and the part of the skin that is free from pustules is commonly pale and flaccid.

The liquor that is in the pustules changes from a clear to an opaque appearance, and becomes whitish or brownish, but never acquires the yellow colour and thick consistence that appear in the distinct smallpox.

DXCII. The swelling of the face which attends the distinct smallpox when they are numerous, and almost then only, always attends the confluent, comes on more early, and arises to a greater degree; but abates on the tenth day, and on the eleventh still more. At this time the pustules or vesicles break, and shrivelling pour out a liquor that is formed into brown or black crusts, which do not fall off for many days after. Those of the face, in falling off, leave the parts they cover subject to a desquamation, which pretty certainly produces pittings.

On the other parts of the body, the pustules of the confluent smallpox are more distinct than upon the face, but never acquire the same maturity and consistence of pus as in the properly distinct kind.

The salivation which only sometimes attends the distinct smallpox, very constantly attends the confluent; and both the salivation and the affection of the fauces above mentioned, are, especially in adults, in a higher degree. In infants a diarrhœa comes frequently in place of the salivation.

“ It has been alleged, that the smallpox occupy the internal as well as the external surface. Dissections, however, have shewn that they go into the fauces, but no farther.”

In the confluent smallpox, there is often a considerable putrescency of the fluids, as appears from petechiæ, from serous vesicles under which the skin shows a disposition to gangrene, and from bloody urine or other hæmorrhagy: all which symptoms frequently accompany this disease.

In the confluent smallpox, the fever, which had only suffered a remission from the time of eruption to that of maturation, is often, at or immediately after this period, renewed with considerable violence. This is what has been called the Secondary Fever; and is, in different cases, of various duration and event.

DXCIII. We have thus endeavoured to describe the various circumstances of the smallpox; and from the difference of these circumstances, the event of the disease may be determined. The whole of the prognosis may be nearly comprised in the following propositions.

The more exactly the disease retains the form of the distinct kind, it is the safer; and the more completely the disease takes the form of the confluent kind, it is the more dangerous.

It is only when the distinct kind shows a great number of pustules on the face, or otherwise, by fever or putrescency, approaches to the circumstances of the confluent, that it is attended with any danger.

In the confluent smallpox there is always danger; and this is always more considerable and certain, according as the fever is more violent and permanent, and especially as the marks and symptoms of putrescency are more evident.

When the putrid disposition is very great, the disease sometimes proves fatal before the eighth day; but in most cases it is on the eleventh that death happens, and sometimes it is put off till the fourteenth or seventeenth day.

Though the smallpox should not be immediately fatal, the more violent kinds are often followed by a morbid state of the body, of various kind and event. These consequences, as I judge, may be imputed sometimes to an acrid matter produced by the preceding disease, and deposited in different parts; and sometimes to an inflammatory diathesis produced, and determined to particular parts of the body.

"These morbid states have not as yet been fully observed and ascertained. Inflammations of the eye or of the lungs, or tubercles of the lungs, are the most frequent consequences: the affection of the eyes from the deposition of an acrid matter in the sebaceous glands of the eyes: the tubercles from the same in the lymphatic glands of the lungs."

DXCIV. It is, I think, agreed among practitioners, that, in the different cases of smallpox, the difference chiefly depends upon the appearance of distinct or confluent; and, from the above description of these kinds, it will appear, that they chiefly differ in the period of the eruption, in the number of pustules produced, in the form of the pustules, in the state of the matter contained in them, in the continuance of the fever, and, lastly, in the danger of the disease.

DXCV. Upon inquiring into the causes of these differences, we might readily suspect, that they depended upon a difference of the contagion producing the disease. This, however, is not probable: for there are innumerable instances of the contagion, arising from a person labouring under the smallpox of the distinct kind, producing the confluent; and on the contrary. Since the practice of inoculation became frequent, we have known the same variolous matter produce in one person the distinct, and in another the confluent smallpox. It is therefore highly probable, that the difference of the smallpox does not depend upon any difference of the contagion, but upon some difference in the state of the persons to whom it is applied, or in the state of certain circumstances concurring with the application of the contagion.

DXCVI. To find out wherein the difference in the state of the persons to whom the contagion of the smallpox is applied consists, I observe, that the difference between the distinct and confluent smallpox consists especially in the number of pustules produced; which, in the distinct, are generally few; in the confluent, always many. If, therefore, we shall be able to discover what, in the state of different persons, can give occasion to more or fewer pustules, we shall probably be able to account for all the other differences of the distinct and confluent smallpox.

DXCVII. It is evident, that the contagion of the smallpox is a ferment with respect to the human fluids, and assimilates a great part of them to its own nature; and it is probable, that the quantity thus assimilated, is, in proportion to the bulk of their several bodies, nearly the same in different persons. This quantity passes again out of the body, partly by insensible perspiration, and partly by being deposited in pustules; but if the quantities generated be nearly equal, the quantities passing out of the body by the two ways mentioned are very unequal in different persons; and, therefore, if we can explain the causes which determine more to pass by the one way than by the other, we may thereby discover the causes which give occasion to more pustules in one person than in another.

DXCVIII. The causes which determine more of the variolous matter to pass by perspiration, or to form pustules, are probably certain circumstances of the skin, that determine more or less of the variolous matter to stick in it, or to pass freely through it.

DXCIX. The circumstance of the skin, which seems to determine the variolous matter to stick in it, is a certain state of inflammation, depending much upon the heat of it. Thus we have many instances of parts of the body, from being more heated, having a greater number of pustules than other parts. In the present practice of inoculation, in which few pustules are produced, much seems to be owing to the care that is taken to keep the skin cool.—"I have had frequent occasion to observe, that in infants always carried in a woman's arms, the cheek which was next to the woman, had more pustules than the other which was exposed to the air: where the nurses are careful, this may not appear. We have several observations to this purpose from Dr. Baker; as of a person attacked with smallpox, who, being in the ordinary sluggish way and sensible to the chilliness of the air, lay down on a couch before a great fire, with one side exposed to the heat; on this side he had a great number of pustules, and on the other but very few. A blacksmith had his bed at the back of his forge, where there is a great heat. Upon that side he had a great number of pustules, and on the other very few."—Parts covered with plasters, especially with those of a stimulant kind, have more pustules than other parts. Further, certain circumstances, such as adult age and full living, determining to a phlogistic diathesis, seem to produce a greater number of pustules; while the contrary circumstances have contrary effects.—"In this way I account for the pustules being more numerous in adults than in infants; the adult state being more liable to the phlogistic diathesis, they have the smallpox more violently, and more adults die in proportion than infants. Another circumstance, which proves how much depends on the phlogistic diathesis is an observation of Dr. Wintringham, that the smallpox become more frequent, and more persons are affected in proportion to the season's disposing to other inflammatory diseases.

"We have to add that there are other circumstances determining the nature of the fever and the number of pustules. Thus the concurrence of fear, cold, intemperance, and other such occasional causes, renders the pustules more numerous. It is a matter of the most certain observation that these occasional causes, concurring with a contagion of any kind, render the disease which follows of a more virulent malignant kind, and this is most certainly the case in smallpox; they may be supposed to act by increasing the fever, for we can have no conception how they can contribute to increase the quantity of morbific matter."

DC. It is therefore probable, that an inflammatory state of the whole system, and more particularly of the skin, gives occasion to a greater number of pustules: and the causes of this may likewise produce most of the other circumstances of the confluent smallpox; such as the period of eruption; the continuance of the fever; the effusion of a more putrescent matter, and less fit to be converted into pus; and, what arises from thence, the form and other circumstances of the pustules.

DCI. Having thus attempted to account for the chief difference which occurs in the state of the smallpox, we shall now try the truth of our doctrine, by its application to practice.

DCII. In considering the practice, we view it first, in general, as suited to render the disease more generally benign and safe, and this by the practice of inoculation.

DCIII. It is not necessary here to describe the operation of inoculating; and what we name the practice of inoculation, comprehends all the several measures which precede or follow that operation, and are supposed to produce its salutary effects.

These measures are chiefly the following:

1. The choosing for the subject of inoculation persons otherwise free from disease, and not liable, from their age or other circumstances, to any incidental disease.
2. The choosing a person at the time of life most favourable to a mild disease.
3. The choosing for the practice a season the most conducive to the mildness of the disease.
4. The preparing the person to be inoculated, by abstinence from animal food for some time before inoculation.
5. The preparing the person by courses of mercurial and antimonial medicines.
6. The taking care, at the time of inoculation, to avoid cold, intemperance, fear, or other circumstances which might aggravate the future disease.
7. After these preparations and precautions, the choosing a

fit matter to be employed in inoculation, by taking it from a person of a sound constitution, and free from any disease or suspicion of it; by taking it from a person who has had the smallpox of the most benign kind; and, lastly, by taking the matter from such persons, as soon as it has appeared in the pustules, either in the part inoculated, or on other parts of the body.

8. The introducing, by inoculation, but a small portion of the contagious matter.

9. After inoculation, the continuing the vegetable diet, as well as the employment of mercurial and antimonial medicines; and, at the same time, frequently employing purgatives.

10. Both before and after inoculation, taking care to avoid external heat, either from the sun, artificial fires, warm chambers, much clothing, or being much in bed; and, on the contrary, exposing the person to a free and cool air.

11. Upon the appearance of the eruptive fever, the rendering that moderate by the employment of purgatives, by the use of cooling and antiseptic acids, and, especially, by exposing the person frequently to a cool and even a cold air, at the same time giving freely of cold drink.

12. After the eruption, the continuing the application of cold air, and the use of purgatives during the course of the disease, till the pustules are fully ripened.

DCIV. These are the measures proposed and practised in the latest and most improved state of inoculation; and the advantages obtained by the whole of the practice, or at least by most of the measures above mentioned, are now ascertained by a long experience to amount to this, That in ninety-nine cases of the hundred, inoculation gives a distinct smallpox only, and that also very generally of the mildest form: but it will be still useful, for the proper conduct of inoculation, to consider the importance and utility of the several measures above mentioned, that we may thereby more exactly determine upon what the advantages of inoculation more certainly depend.

DCV. As the common infection may often seize persons labouring under another disease, which may render the smallpox more violent, it is obvious that inoculation must have a great advantage, by avoiding such concurrence. But, as the avoiding such concurrence may often, in the meanwhile, leave persons exposed to the common infection, it merits inquiry, whether every diseased state should restrain from the practice of inoculation, or what are the particular diseases that should do so. This is not yet sufficiently ascertained by observation; and we have frequently remarked, that the smallpox have often occurred with a diseased state of the body, without being thereby rendered more violent. In particular, we have observed, that a scrofulous habit, or even the presence of scrofula, did not render the smallpox more violent; and we have observed also, that several diseases of the skin are equally innocent. I am of opinion, that they are the diseases of the febrile kind, or ailments ready to induce or aggravate a febrile state, that especially give the concurrence which is most dangerous with the smallpox. I dare not attempt any general rules; but I am disposed to maintain, that, though a person be in a diseased state, if that state be of uncertain nature and effect, and at the same time the smallpox be exceedingly rife, so as to render it extremely difficult to guard against the common infection, it will always be safer to give the smallpox by inoculation, than to leave the person to take them by the common infection.

DCVI. Though inoculation has been practised with safety upon persons of all ages; yet, from what has actually occurred in the cases of common infection, and from several other considerations, there is reason to conclude, that adults are more liable to a violent disease than persons of younger years. At the same time, it is observed, that children, in the time of their first dentition, are liable, from this irritation, to have the smallpox rendered more violent; and that infants, before the time of dentition, upon receiving the contagion of the smallpox, are liable to be affected with epileptic fits, which frequently prove fatal. It is, therefore, upon the whole, evident, that, though circumstances may admit, and even render inoculation at any age proper; yet, for the most part, it will be still more advisable to choose persons at an age, after the first dentition is over, and before the time of puberty.

DCVII. Though inoculation has been practised with safety at every season of the year; yet, as it is certain that the cold of winter may increase the inflammatory, and the heats of summer increase the putrescent state of the smallpox, it is highly probable that inoculation may have some advantage, from avoiding the extremes either of heat or cold.

DCVIII. Although the original temperament and constitutions of men are not to be readily changed; it is sufficiently certain, that the conditions of the human body may, by various causes, in many respects be occasionally very much changed: and therefore, as the use of animal food may increase both the inflammatory and putrescent state of the human body, so it must render persons, on receiving the contagion of the smallpox, less secure against a violent disease; and, therefore, inoculation may derive some advantage from abstinence from animal food for sometime before the inoculation is performed: but I am of opinion, that a longer time than that usually prescribed may be often necessary; and I am persuaded, that the Scottish mothers, who avoid giving their children animal food till they are past the smallpox, render this disease in them of a milder kind.

DCIX. I cannot deny that mercurial and antimonial medicines may have some effect in determining to a more free perspiration, and therefore may be of some use in preparing a person for the smallpox; but there are many observations which render me doubtful as to their effect. The quantity of both these medicines, particularly of the antimony, commonly employed, is too inconsiderable to produce any effect. It is true, that the mercurials have often been employed more freely; but even their salutary effects have not been evident, and their mischievous effects have sometimes appeared. I doubt, therefore, upon the whole, if inoculation derives any advantage from these pretended preparatory courses of medicines.

DCX. As it has been often observed, in the case of almost all contagions, that cold, intemperance, fear, and some other circumstances, concurring with the application of the contagion, have greatly aggravated the future disease, so it must be th same in the case of the smallpox; and it is undoubted, tha inoculation must derive a great, and perhaps its principal, advantage, from avoiding the concurrences above mentioned.

DCXI. It has been commonly supposed, that inoculation ha derived some advanatge from the choice of the matter employe in it; but, from what has been observed in DXCV., it mus appear very doubtful if any choice be necessary, or can be of any benefit in determining the state of the disease.

DCXII. It has been supposed by some, that inoculation has an advantage, by introducing a small portion only of the contagious matter: but this rests upon an uncertain foundation. It is not known what quantity is introduced by the common infection, and it may be a small quantity only. Although it were larger than that thrown in by inoculation, it is not ascertained that the circumstance of quantity would have any effect. A certain quantity of ferment may be necessary to excite fermentation in a given mass; but that quantity given, the fermentation and assimilation are extended to the whole mass; we do not find that a greater quantity than is just necessary, either increases the activity of the fermentation, or more certainly secures the assimilation of the whole. In the case of the smallpox, a considerable difference in the quantity of contagious matter introduced has not discovered any effect in modifying the disease.

DCXIII. Purging has the effect of diminishing the activity of the sanguiferous system, and of obviating its inflammatory state. It is therefore probable, that the frequent use of cooling purgatives is a practice attending inoculation which may be of considerable advantage; and, probably, it is also useful by diminishing the determination to the skin. It appears to me, that mercurials and antimonials, as they are commonly managed, are useful only as they make a part of the purging course.

DCXIV. It is probable, that the state of the smallpox depends very much upon the state of the eruptive fever, and particularly upon moderating the inflammatory state of the skin; and, therefore, it is probable, that the measures taken for moderating the eruptive fever and inflammatory state of the skin, afford the greatest improvement which has been made in the practice of inoculation. The tendency of purging, and the use of acids for this purpose is sufficiently obvious; and, upon the same grounds, we should suppose that blood-letting might be useful; but probably this has been omitted for the same reason that perhaps might have led to the omission of other remedies also; which is, that we have found a more powerful and effectual one in the application of cold air, and the use of cold drink. Whatever doubts or difficulties our theory might present to us on this subject, they may be entirely neglected, as the practice of Indostan had long ago, and the practice of this country has very lately, by a large and repeated experience, ascertained the safety and efficacy of this remedy; and as it may and can be more certainly employed with the practice of inoculation, than it can be in cases of common infection, it must give a singular advantage to the former.

DCXV. After the eruption, when a few pimples only have appeared on the face, the continuing the application of cold air, and the employment of purgatives, has indeed been the practice of many inoculators; but I think these practices cannot be said to give any peculiar advantages to inoculation; for, when the state of the eruption is determined, when the number of pustules is very small, and the fever has entirely ceased, I hold the safety of the disease to be absolutely ascertained, and the further use of remedies entirely superfluous. In such cases, I judge the use of purgatives to be not only unnecessary, but that they may be often hurtful.

DCXVI. I have thus considered the several circumstances and practices accompanying inoculation, and have endeavoured to ascertain the utility and importance of each. Upon the whole, I hope I have sufficiently ascertained the general utility and great advantage of this practice, especially consisting in this, that if certain precautions, preparations, and remedies, are of importance, all of them can be employed with more certainty in the practice of inoculation, than in the case of common infection.

It remains now that I should offer some remarks on the conduct of the smallpox, as received by infection, or even when, after inoculation, the symptoms shall prove violent. The latter sometimes happens, although every precaution and remedy have been employed. The cause of this is not well known; but it appears to me to be commonly owing to a disposition of the fluids to putrescency. But, however this may be, it will appear, that not only in the case of common infection, but even in that of inoculation, there may be occasion for studying the conduct of this disease, in all its possible varying circumstances.

DCXVII. When, from the prevailing of smallpox as an epidemic, and more especially when it is known that a person not formerly affected with the disease has been exposed to the infection, if such person should be seized with the symptoms of fever, there can be little doubt of its being an attack of the smallpox; and therefore he is to be treated in every respect as if the disease had been received by inoculation. He is to be freely exposed to a cool air, to be purged, and to have cooling acids given liberally.

"It has been frequently observed, that an obstructed perspiration has occasioned a diarrhœa. If this change of distribution, therefore, is in general the nature of the economy, it will be readily understood, why purging, by increasing the afflux of blood to the internal, should diminish that to the external parts, or to the surface of the body, and that it should therefore have considerable effects in many cutaneous diseases. Whenever these depend upon any inflammatory determination to the surface of the body, purging may be a remedy for them: and when it is foreseen that, in certain diseases, such an inflammatory determination to the skin is to arise; and according to its violence to aggravate the disease, it will be evident, that purging, by moderating or taking off that determination, may render the disease more moderate. This I take to be the foundation of the practice of purging in the approach and beginning of the smallpox; and I have no doubt, that this, in concurring with other measures, contributes to the mildness of the disease.—*M.M.*

DCXVIII. If these measures moderate the fever, nothing more is necessary: but if the nature of the fever attacking a person be uncertain; or if, with suspicions of the smallpox, the symptoms of the fever be violent; or even if, knowing the disease to be smallpox, the measures mentioned (DXLVII.) shall not moderate the fever sufficiently; it will be proper to let some blood: and this will be more especially proper if the person be an adult, of a plethoric habit, and accustomed to full living.

DCXIX. In the same circumstances, we judge it will be always proper to give a vomit, as useful in the commencement of all fevers, and more especially in this, where a determination to the stomach appears from pain and spontaneous vomiting.

DCXX. It frequently happens, especially in infants, that, during the eruptive fever of the smallpox, convulsions occur. Of these, if only one or two fits appear in the evening preceding the eruption, they give a favourable prognostic of a mild disease, and require no remedy; but if they occur more early, and be violent and frequently repeated, they are very dangerous, and require a speedy remedy. For this purpose, bleeding is hardly ever of service; "it may modify the violence of the fits; but where they come to occur frequently, they would occasion the use of venesection too often, and it may be doubtful whether that be not favourable to the increase of these symptoms;" blistering always comes too late; and the only remedy I have found effectual, is an opiate given in a large dose.

DCXXI. These are the remedies necessary during the eruptive fever; and if, upon the eruption, the pimples upon the face be very few and distinct, the disease is no further of any danger, requires no remedies, and the purgatives, which, as has been said before, are by some practitioners continued, prove often hurtful.

But when, upon the eruption, the pimples on the face are very numerous, when they are not distinct, and especially when, upon the fifth day, the fever does not suffer a considerable remission, the disease will still require a great deal of attention.

DCXXII. If, after the eruption, the fever shall continue; the avoiding heat, and the continuing to expose the body to a cool air, will still be proper. If the fever be considerable, with a full and hard pulse, in an adult person, a bleeding will be necessary; and, more certainly, a cooling purgative. It is, however, seldom that a repetition of the bleeding will be proper, as a loss of strength does usually come on very soon; but the repetition of a purgative, or the frequent use of laxative glysters, is commonly useful.

DCXXIII. When a loss of strength, with other marks of a putrescent tendency of the fluids appears, it will be necessary to exhibit the Peruvian bark in substance, and in large quantity. In the same case, the free use of acids and of nitre is useful; and it is commonly proper also to give wine very freely.

"From an opinion of the bark being favourable to suppuration, it has been employed even during the eruptive fever; but I have hardly ever observed a case in which it seemed proper. Allowing the bark, in certain circumstances, to be favourable to suppuration, it does not appear clearly that these circumstances ever occur during the eruptive fever. It is possible that the eruptive fever of the smallpox may be of the putrid kind, in which therefore the bark might be allowable; but I have hardly ever been able to ascertain such a case; and upon the supposition of its being the case, I have found the exhibition of the bark to be hurtful. In my opinion, it is only after the eruption, that, by the confluence of the pustules and other circumstances, we can discern the putrid diathesis which requires the bark; and when none of these circumstances are present, as in most cases of distinct smallpox, though these be very numerous, the bark in large quantity is very hurtful.—*M.M.*

DCXXIV. From the fifth day of the disease, onward through the whole course of it, it is proper to give an opiate once or twice a-day; taking care, at the same time, to obviate costiveness, by purgatives or laxative glysters.

"In the inflammatory state of the eruptive fever I have always found opium hurtful; but as soon as the disease has taken a determination to suppuration, I have always found it employed with advantage. In confluent smallpox, which is always attended with a low and putrid fever, I hold opium to be one of the most effectual means of supporting the vigour of the system, and of producing as much of a kindly suppuration as the nature of the disease will admit of. In short, I hold opium to be a very useful medicine in various circumstances of the smallpox.—*M. M.*

DCXXV. In a violent disease, from the eighth to the eleventh day, it is proper to lay on blisters successively on different parts of the body, and that without regard to the parts being covered with pustules.

DCXXVI. If, in this disease, the tumour of the fauces be considerable; the deglutition difficult; the saliva and mucus viscid, and with difficulty thrown out; it will be proper to apply blisters to the external fauces, and to employ diligently detergent gargles.

DCXXVII. During the whole course of the disease, when any considerable fever is present, the frequent exhibition of antimonial medicines, in nauseating doses, has been found useful; and these, for the most part, sufficiently answer the purpose of purgatives.

DCXXVIII. The remedies mentioned from DCXXII. to DCXXVI. are those frequently necessary, from the fifth day till the suppuration is finished. But as, after that period, the fever is sometimes continued and increased; or, as sometimes, when, after there has been little or no fever before, a fever now arises, and continues with considerable danger; this is what is called the Secondary Fever, and requires particular treatment.

DCXXIX. When the secondary fever follows the distinct smallpox, and the pulse is full and hard, the case is to be treated as an inflammatory affection by bleeding and purging. But if the secondary fever follow the confluent smallpox, and be a continuance or exacerbation of the fever which had subsisted before, it is to be considered as of the putrid kind; and in that case bleeding is improper. Some purging may be necessary; but the remedies to be chiefly depended on, are the Peruvian bark and acids.

When the secondary fever first appears, whether it is after a distinct or a confluent smallpox, it will be useful to exhibit an antimonial emetic in nauseating doses, but in such a manner as to produce some vomiting.

DCXXX. For avoiding the pits which frequently follow the smallpox, many different measures have been proposed; but none of them appear to be sufficiently certain.

CHAP. II.—OF THE CHICKENPOX.

DCXXXI. This disease seems to depend upon a specific contagion, and to affect persons but once in their lives. It is hardly ever attended with any danger; but as it seems frequently to have given occasion to the supposition of a person's having the smallpox twice, it is proper to study this disease, and to distinguish it from the genuine smallpox.

DCXXXII. This may be generally done by attending to the following circumstances.

The eruption of the chickenpox comes on with very little fever preceding it, or with fever of no determined duration.

The pimples of the chickenpox, more quickly than those of the smallpox, are formed into little vesicles or pustules.

The matter in these pustules remains fluid, and never acquires the colour or consistence of the pus which appears in the pustules of the smallpox.

The pustules of the chickenpox are always, in three or four days from their first appearance, formed into crusts.

See Dr. Heberden in Med. Transact. Vol. I. art. xvii.

CHAP. III.—OF THE MEASLES.

"The character of this disease (See *Synopsis*, gen. XXVIII.) is clear, and not liable to any ambiguity that I know of. I must only say, that it becomes a little doubtful by my comprehending under it the Rubeola varioloides, what in Scotland we call *the Nirles*, a disease so slight in its symptoms, and short in its duration, that I find but few physicians well acquainted with it; and it is not of frequent occurrence. It is arranged under the same title as the common measles, because it is attended with the peculiar symptoms of catarrh, &c.; but it differs in this, that the papillæ which occur here, are not in such clusters as those of the measles. They are more distant and more observable, more eminent and considerable, and they get more or less of a vesicle on the top; but this disappears without any sensible suppuration, and, in the course of a day or two, falls off in a scale or very small crust. Whether it is to be considered as a contagion of a distinct kind, or comprehended under the Rubeola, I shall not here determine. It has several times occurred to me, but I did not attend to it so as to be able to establish this point."

DCXXXIII. This disease also depends upon a specific contagion, and affects persons but once in their lives.

"With regard to this, as to all other contagions, we know nothing of its peculiar nature but by certain effects; and here again, the conduct of the disease turns entirely upon obviating or correcting these effects, without regard to their peculiar cause, and to the nature of the matter that produced them."

DCXXXIV. It occurs most frequently in children; but no age is exempted from it, if the persons have not been subjected to it before.

DCXXXV. It commonly appears as an epidemic, first in the month of January, and ceases soon after the summer solstice; but various accidents, introducing the contagion, may produce the disease at other times of the year.

DCXXXVI. The disease always begins with a cold stage, which is soon followed by a hot, with the ordinary symptoms of thirst, heat, anorexia, anxiety, sickness, and vomiting; and these are more or less considerable in different cases. Sometimes from the beginning the fever is sharp and violent; often, for the first two days, it is obscure and inconsiderable, but always becomes violent before the eruption, which usually happens upon the fourth day.

DCXXXVII. This eruptive fever, from its commencement, is always attended with hoarseness, with a frequent, hoarse, dry cough, and frequently with some difficulty of breathing. At the same time, the eye-lids are somewhat swelled, the eyes are a little inflamed, and pour out tears; and together with these symptoms, there is a coryza, and frequent sneezing. For the most part, a constant drowsiness attends the beginning of this disease.

"The measles are certainly attended with a catarrh in the whole Schneiderian membrane of the nose, in the fauces, and bronchiæ, which continues at least during the time of the eruption; and the same determination frequently takes place to the alimentary canal, and more or less diarrhœa occurs upon the receding of the measles. It was Sydenham's sagacity which discovered that this was of the inflammatory kind, and to be cured by bleeding. Though I find few practitioners who understand the meaning of this, yet in the confidence which I had in his sagacity, I have practised it several times, and with success."

DCXXXVIII. The eruption, as we have said, commonly appears upon the fourth day, first on the face, and successively on the lower parts of the body. It discovers itself first in small red points, but soon after, a number of these appear in clusters, which do not rise into visible pimples, but by the touch are found to be a little prominent. This is the case on the face, but on other parts of the body, the prominence, or roughness, is hardly to be perceived. On the face the eruption retains its redness, or has that increased for two days, but on the third, the vivid redness is changed to a brownish red; and in a day or two more, the eruption entirely disappears, while a mealy desquamation takes place. During the whole time of the eruption, the face is somewhat turgid, but seldom considerably swelled.

DCXXXIX. Sometimes, after the eruption has appeared, the fever ceases entirely; but this is seldom the case, and more commonly the fever continues, or is increased after the eruption, and does not cease till after the desquamation. Even then the fever does not always cease, but continues with various duration and effect.

DCXL. Though the fever happen to cease, upon the eruptions taking place, it is common for the cough to continue till after the desquamation, and sometimes much longer.

In all cases, while the fever continues, the cough also continues, generally with an increase of the difficulty of breathing; and both of these symptoms sometimes arise to a degree that denotes a pneumonic affection. This may arise at any period of the disease, but very often it does not come on till after the desquamation of the eruption.—" Generally, the cough is quite dry, and in consequence of that, is attended by considerable hoarseness; but upon occasions, it very soon becomes of the humid kind; and it is always one of the most salutary symptoms of the measles when the cough is attended with some expectoration."

After the same period, also, a diarrhœa frequently comes on, and continues for some time.

DCXLI. It is common for the measles, even when they have not been of a violent kind, to be succeeded by inflammatory affections, particularly ophthalmia and phthisis.

"When the eruption has ceased, a general inflammatory diathesis sometimes appears by several symptoms; and generally, though no particular determination does immediately appear, the diathesis remains for a long time after, so that a variety of external and internal causes afterwards direct it to a particular part. Thus, when the catarrh itself has subsided with the fever and eruption, such persons as have had the measles, are more liable to have it renewed in a more violent degree, and to have various inflammatory affections in the lungs and other parts.

"The general inflammatory diathesis may be supposed to be merely an attendant on the catarrhal state: but I think it is of consequence to observe, that the general diathesis here be not considered as a symptoma symptomatis, but as a symptoma causæ, as depending on the same cause; for we find many other parts of the system affected with inflammation besides the lungs and bronchiæ. I make this observation to introduce the general one, that the whole of the danger arising, or to be suspected, from the measles, is from more or less of the topical inflammation produced by them; and which, I say, may be in different parts of the system, although there is a more particular determination to the lungs, and peripneumony is more commonly their consequence than any other disease.

"I must allow that the effects of the measles are sometimes very difficultly perceived: and, as contagious matter in several other instances takes its course through, or is deposited in the lymphatic glands, so this happens also in consequence of measles. I have known the Atrophia infantium, as it is called, or the strumous affection of the mesenteric glands, take its rise from hence: it attacks more commonly the lymphatic glands of the lungs, and lays the foundation of the tubercles, which appear only a long time afterwards in Phthisis pulmonalis. Thus, what is commonly called *the dregs* of the measles, arises, partly in consequence of the inflammatory diathesis, and partly in consequence of the deposition of matter in particular parts, and especially in the lymphatic glands. Whether it depend upon a portion of the morbillous matter still remaining in the system, or if it be only the effect immediately arising from it during the operation of the disease, may be a matter of some curiosity, but it is not necessary here to determine it.

DCXLII. If the blood be drawn from a vein during the measles, with the circumstances necessary to favour the separation of the gluten, this always appears separated, and lying on the surface of the crassamentum, as in inflammatory diseases.

DCXLIII. For the most part the measles, even when violent, are without any putrid tendency; but in some cases such a tendency appears, both in the course of the disease, and especially after the ordinary course of it is finished.—See Dr. Watson, in London Medical Observations, Vol. IV. art. xi.

DCXLIV. From what is delivered, from DCXXXVII. to DCXLII., it will appear, that the measles are distinguished by a catarrhal affection, and by an inflammatory diathesis to a considerable degree; and therefore the danger attending them arises chiefly from the coming on of a pneumonic inflammation.

DCXLV. From this consideration it will be obvious, that the remedies especially necessary, are those which may obviate and diminish the inflammatory diathesis; and therefore, in a particular manner, blood-letting. This remedy may be employed at any time in the course of the disease, or after its ordinary course is finished. It is to be employed, more or less, according to the urgency of the symptoms of fever, cough, and dyspnœa; and generally may be employed very freely. But, as the symptoms of pneumonic inflammation seldom come on during the eruptive fever; and, as this fever is sometimes violent immediately before the eruption, though a sufficiently mild disease be to follow; so bleeding is seldom very necessary during the eruptive fever, and may often be reserved for the periods of greater danger which are perhaps to ensue.

“ The remedy on which we are chiefly to depend is blood-letting; this is now so well known, that if there is any danger or error in our practice, it is in the carrying it to excess. I have known a child of four or five years bled eight or nine times in the measles: as I was not present in the case, I cannot say how far the symptoms required it, but I am apt to suspect that it was greatly in excess, and the child's constitution was for many years afterwards considerably weakened by it. I must observe, that the expectation of an eruption should never prevent us from bleeding: I have hinted, once and again, how much certain practitioners were adverse to it, from the consideration, that the fever is necessary for the eruption; but in the measles it is agreed that if the fever or dyspnœa give any suspicion of a high degree of inflammation, bleeding is necessary, safe, and proper, at every period in the course of the disease. Dr. Sydenham, however, hardly went so far; and his general direction is, hardly to bleed till the eruption is formed. We are generally uncertain how far we ought to be alarmed by the symptoms, which may be violent during the eruptive fever, and some, such as violent anxiety, sickness, fever, frequency of pulse, may subsist during the eruption; but if they are without dyspnœa, without pains about the thorax, but especially without a violent and dry cough, I have seen them disappear entirely with the eruption, and more certainly they disappear when desquamation takes place. Sydenham seems to have had in view only the remainder of the inflammation; but I would still return to the general rule, that when symptoms run high, it is proper to have recourse to bleeding, and no disease, except peripneumony itself, will bear a larger evacuation in this way better: and not only during the course of the disease, but at any time afterwards, bleeding is to be chiefly depended upon."

DCXLVI. In all cases of measles, where there are no marks of putrescency, and where there is no reason, from the known nature of the epidemic, to apprehend putrescency, bleeding is the remedy to be depended upon; but assistance may also be obtained from cooling purgatives, and particularly from blistering on the sides or between the shoulders.

DCXLVII. The dry cough may be alleviated by the large use of demulcent pectorals, mucilaginous, oily, or sweet. It may, however, be observed with respect to these demulcents, that they are not so powerful in involving and correcting the acrimony of the mass of blood as has been imagined; and that their chief operation is by besmearing the fauces, and thereby defending them from the irritation of acrids, either arising from the lungs, or distilling from the head.

DCXLVIII. For moderating and quieting the cough in this disease, opiates certainly prove the most effectual means, whenever they can be safely employed. In the measles, in which an inflammatory state prevails in a considerable degree, opiates may be supposed to be inadmissible; and, in those cases in which a high degree of pyrexia and dyspnœa show either the presence, or at least the danger, of pneumonic inflammation, I think that opiates might be very hurtful. In cases, however, in which the dyspnœa is not considerable, and where bleeding, to obviate or abate the inflammatory state, has been duly employed, and where the cough and watchfulness are the urgent symptoms, I think that opiates may be safely exhibited, and with great advantage.

I think, further, that, in all the exanthemata, there is an acrimony diffused over the system, which gives a considerable irritation: and, for obviating the effects of this, opiates are useful, and always proper, when no particular contraindication prevails.

DCXLIX. When the desquamation of the measles is finished, though there should then be no disorder remaining, physicians have thought it necessary to purge the patient several times, with a view to draw off the dregs of this disease, that is, a portion of the morbific matter which is supposed to remain long in the body. I cannot reject this supposition; but, at the same time, cannot believe, that the remains of the morbific matter, diffused over the whole mass of blood, can be entirely drawn off by purging; and it appears to me, that, to avoid the consequences of the measles, it is not the drawing off the morbific matter which we need to study so much, as the obviating and removing the inflammatory state of the system which had been induced by the disease. With this last view, indeed, purging may still be a proper remedy; but bleeding, in proportion to the symptoms of inflammatory disposition, is yet more so.

DCL. From our late experience of the benefit of cold air in the eruptive fever of the smallpox, some physicians have been of opinion, that the practice might be transferred to the measles; but we have not yet had trials sufficient to ascertain this. There is no doubt that external heat may be very hurtful in the measles, as in most other inflammatory diseases; and therefore the body ought to be kept in a moderate temperature during the whole course of the measles; but how far, at any period of the disease, cold air may be applied with safety, we are yet uncertain. Analogy, though so often the resource of physicians, is in general fallacious; and further, though the analogy with the smallpox might lead to the application of cold air during the eruptive fever of the measles, the analogy with catarrh seems to be against the practice. After the eruption had appeared upon the skin, we have had many instances of cold air making it disappear, and thereby producing much disorder in the system; and we have also had frequent examples of such disorder being removed by restoring the heat of the body, and thereby again bringing forth the eruption.

CHAP. IV.—OF THE SCARLET FEVER.

DCLI. It may be doubted if the scarlet fever be a disease specifically different from the Cynanche maligna above described. The latter is almost always attended with a scarlet eruption; and, in all the instances I have seen of what may be called the scarlet fever, the disease, in almost every person affected, has been attended with an ulcerous sore throat.

DCLII. This view of the matter may create some doubt; but I am still of opinion, that there is a scarlet fever which is a disease specifically different from the Cynanche maligna.

Dr. Sydenham has described a scarlet fever, which he had seen prevailing as an epidemic, with all the circumstances of the fever and eruption, without its being accompanied with any affection of the throat; at least he does not take notice of any such affection, which such an accurate observer could not fail to have done, if any such symptom, as we have commonly seen making a principal part of the disease, had attended those cases which he had observed. Several other writers have described the scarlet fever in the same manner, and I know physicians who have seen the disease in that form; so that there can be no doubt of there being a scarlet fever not necessarily connected with an ulcerous sore throat, and therefore a disease different from the Cynanche maligna.

DCLIII. But, further, although in all the instances of scarlet fever which I have seen (and in the course of forty years I have seen it six or seven times prevailing as an epidemic in Scotland), the disease, in almost all the persons affected, was attended with an ulcerous sore throat, or was what Sauvages names the Scarlatina anginosa; and although, in some instances, the ulcers of the throat were of a putrid and gangrenous kind, and at the same time the disease in all its symptoms resembled very exactly the Cynanche maligna; yet I am still persuaded, that not only the Scarlatina of Sydenham, but that even the Scarlatina anginosa of Sauvages, is a different disease from the Cynanche maligna; and I have formed this opinion from the following considerations:—

DCLIV. *First*, There is a scarlet fever entirely free from any affection of the throat, which sometimes prevails as an epidemic; and therefore there is a specific contagion producing a scarlet eruption without any determination to the throat.

Secondly, The Scarlatina, which, from its matter being generally determined to the throat, may be properly termed Anginosa, has, in many cases of the same epidemic, been without any affection of the throat; and therefore contagion may be supposed to be more especially determined to produce the eruption only.

Thirdly, Though in all the epidemics that I could allege to be those of the scarlatina anginosa, there have been some cases which, in the nature of the ulcers, and in other circumstances, exactly resembled the cases of the cynanche maligna; yet I have as constantly remarked, that these cases have not been above one or two in a hundred, while the rest have all of them been with ulcers of a benign kind, and with circumstances hereafter to be described, somewhat different from those of the Cynanche maligna.

Fourthly, On the other hand, as I have two or three times seen the Cynanche maligna epidemically prevailing; so, among the persons affected, I have seen instances of cases as mild as those of the Scarlatina anginosa usually are; but here the proportion was reversed; and these mild cases were not one-fifth of the whole, while the rest were of the putrid and malignant kind.

Lastly, It applies to the same purpose to observe, that, of the Cynanche maligna, most of the instances terminate fatally, while, on the other hand, that is the event of very few of the cases of the Scarlatina anginosa.

DCLV. From these considerations, though it may appear that there is some affinity between the Cynanche maligna and Scarlatina anginosa, it will still remain probable that the two diseases are specifically different. I have been at some pains to establish this opinion: for, from all my experience, I find, that those two diseases require a different treatment; and I therefore now proceed to mention more particularly the circumstances of the Scarlatina anginosa.

DCLVI. This disease commonly appears about the beginning of winter, and continues throughout the season.

"I have followed Sydenham in assigning particular times of the year to the appearance of diseases depending on a specific contagion. But I have seen the measles beginning in summer. Scarlet fever also has begun in summer this year (1782.). Almost every epidemic is obliterated by a long-continued frost in winter, but sometimes returns after the frost. Epidemics seem to decline by degrees, after having exhausted the persons liable to be affected."

It comes on with some cold shivering, and other symptoms of the fever which usually introduces the other exanthemata. But here there is no cough, nor the other catarrhal symptoms which attend the measles; nor is there that anxiety and vomiting which commonly introduce the confluent smallpox, and which more certainly introduce the Cynanche maligna.

Early in the disease, some uneasiness is felt in the throat; and frequently the deglutition is difficult, generally more so than in the Cynanche maligna. Upon looking into the fauces, a redness and swelling appear, in colour and bulk approaching to the state of these symptoms in the cynanche tonsillaris; but in the Scarlatina, there is always more or less of sloughs, which seldom appear in the Cynanche tonsillaris; and the sloughs are commonly whiter than those in the Cynanche maligna.

While these appearances are discovered in the fauces, upon the third or fourth day a scarlet eruption appears on the skin, in the same form as described in CCCXIV. This eruption is commonly more considerable and universal than in the Cynanche; but it seldom produces a remission of the fever. The eruption for the most part remains till the third or fourth day after its first appearance; but then goes off, ending in a mealy desquamation. At this time the fever usually subsides; and generally, at the same time, some degree of sweat comes on.

The sloughs on the fauces, which appeared early in the disease, continue for some days, but then falling off, discover the swelling abated, and an ulcer formed on one or both tonsils, showing a laudable pus; and soon after the fever has subsided, these ulcers heal up entirely. For the most part, this disease has much less of coryza attending it than the Cynanche maligna; and, when there is a coryza attending the Scarlatina, the matter discharged is less acrid, and has not the fetid smell which it has in the other disease.

In the Scarlatina, when the eruption has entirely disappeared, it frequently happens, that, in a few days after, the whole body is affected with an anasarcous swelling; which, however, in a few days more, gradually subsides.

We have thus described the most common circumstances of the Scarlatina Anginosa; and have only to add, that, during the time of its being epidemic, and especially upon its first setting in, there are always a few cases in which the circumstances of the disease approach very nearly to those of the Cynanche maligna; and it is only in these instances that the disease is attended with any danger.

DCLVII. With respect to the cure of this disease, when the symptoms of it are nearly the same with those of the Cynanche maligna, it requires exactly the same treatment as directed in CCCXVII.

DCLVIII. When the scarlet fever appears without any affection of the throat, the treatment of it is very simple, and is delivered by Dr. Sydenham. An antiphlogistic regimen is commonly all that is requisite; avoiding, on one hand, the application of cold air, and, on the other, any increase of external heat.

DCLIX. In the ordinary state of the Scarlatina Anginosa, the same treatment is, in most cases, sufficient; but as here the fever is commonly more considerable, and there is likewise an affection of the throat, some remedies may be often necessary.

DCLX. When there is a pretty high degree of fever, with a full pulse, and a considerable swelling of the tonsils, bleeding is very proper, especially in adults; and it has been frequently practised with advantage: but as, even in the Cynanche tonsillaris, much bleeding is seldom necessary (CCCV.); so, in the Scarlatina, when the state of the fever and the appearances of the fauces render the nature of the disease ambiguous, bleeding may be omitted; and, if not altogether avoided, it should at least not be large, and ought not to be repeated.

DCLXI. Vomiting, and especially nauseating doses of emetics, notwithstanding the inflamed state of the fauces, have been found very useful in this disease. An open belly is proper in every form of this disease; and when the nauseating doses of emetics operate a little downwards, they are more serviceable.

DCLXII. In every form of the Scarlatina anginosa, through the whole course of it, detergent gargles should be employed, and more or less as the quantity of sloughs and the viscid mucus in the fauces may seem to require.

DCLXIII. Even in the milder states of the Scarlatina anginosa, it has been common with practitioners to exhibit the Peruvian bark through the whole course of the disease; but we are assured, by much experience, that in such cases it may be safely omitted, though in cases anywise ambiguous it may not be prudent to neglect this remedy.

DCLXIV. The anasarcous swelling, which frequently follows the Scarlatina anginosa, seldom requires any remedy; and, at least, the purgatives so much inculcated, and so commonly exhibited, soon take off the anasarca.

CHAP. V.—OF THE PLAGUE.

SECT. I.—OF THE PHENOMENA OF THE PLAGUE.

DCLXV. The plague is a disease which always arises from contagion; which affects many persons about the same time; proves fatal to great numbers; generally produces fever; and, in most persons, is attended with buboes or carbuncles.

DCLXVI. These are the circumstances which, taken together, give the character of the disease; but it is accompanied with many symptoms almost peculiar to itself, that, in different persons, are greatly diversified in number and degree, and should be particularly studied. I would wish to lay a foundation for this; but think it unfit for a person who has never seen the disease to attempt its particular history. For this, therefore, I must refer to the authors who have written on the subject; but allowing those only to be consulted, who have themselves seen and treated the disease in all its different forms.

DCLXVII. From the accounts of such authors, it appears to me, that the circumstances which particularly distinguish this disease, and especially the more violent and dangerous states of it, are,

First, The great loss of strength in the animal functions, which often appears early in the disease.

Secondly, The stupor, giddiness, and consequent staggering, which resembles drunkenness, or the headach, and various delirium; which are all of them symptoms denoting a great disorder in the functions of the brain.

Thirdly, The anxiety, palpitation, syncope, and especially the weakness and irregularity of the pulse, which denote a considerable disturbance in the action of the heart.

Fourthly, The nausea and vomiting, particularly the vomiting of bile, which shows an accumulation of vitiated bile in the gall-bladder and biliary ducts, and from thence derived into the intestines and stomach; all of which symptoms I suppose to denote a considerable spasm, and loss of tone, in the extreme vessels on the surface of the body.

Fifthly, The buboes or carbuncles, which denote an acrimony prevailing in the fluids. And,

Lastly, The petechiæ, hæmorrhagies, and colliquative diarrhœa, which denote a putrescent tendency prevailing to a great degree in the mass of blood.

DCLXVIII. From the consideration of all these symptoms, it appears, that the plague is especially distinguished by a specific contagion, often suddenly producing the most considerable symptoms of debility in the nervous system or moving powers, as well as of a general putrescency in the fluids; and it is from the consideration of these circumstances as the proximate cause, that I think both the prevention and cure of the plague must be directed.

DCLXIX. If this disease should revisit the northern parts of Europe, it is probable, that, at the time, there will be no physician then alive, who, at the first appearance of the disease, can be guided by his former experience, but must be instructed by his study of the writers on this subject, and by analogy. It is, therefore, I hope, allowable for me, upon the same grounds, to offer here my opinion with respect to both the prevention and cure of this disease.

This paragraph was written before I had any notice of the plague of Moscow anno 1771; but I think it will still apply to the case of Great Britain, and of many other northern states.

SECT. II.—OF THE PREVENTION OF THE PLAGUE.

DCLXX. With respect to the prevention: As we are firmly persuaded that the disease never arises in the northern parts of Europe, but in consequence of its being imported from some other country; so the first measure necessary, is the magistrate's taking care to prevent the importation; and this may generally be done by due attention to bills of health, and to the proper performance of quarantines.

DCLXXI. With respect to the latter, we are persuaded, that the quarantine of persons may safely be much less than forty days; and if this were allowed, the execution of the quarantine would be more exact and certain, as the temptation to break it would be in a great measure removed.

DCLXXII. With respect to the quarantine of goods it cannot be perfect, unless the suspected goods be unpacked and duly ventilated, as well as the other means employed for correcting the infection they may carry; and, if all this were properly done, it is probable that the time commonly prescribed for the quarantine of goods might also be shortened.

DCLXXIII. A second measure, in the way of prevention, becomes requisite, when an infection has reached and prevailed in any place, to prevent that infection from spreading into other places. This can be done only by preventing the inhabitants, or the goods of any infected place, from going out of it, till they have undergone a proper quarantine.

DCLXXIV. The third measure for prevention, to be employed with great care, is to hinder the infection from spreading among the inhabitants of the place in which it has arisen. The measures necessary for this, are to be directed by the doctrine laid down in LXXXII.; and from that doctrine, we infer, that all persons who can avoid any near communication with infected persons or goods, may escape the infection.

DCLXXV. For avoiding such communication a great deal may be done by the magistrate: 1. By allowing as many of the inhabitants as are free from the infection, and not necessary to the service of the place, to go out of it. 2. By prohibiting all assemblies, or unnecessary intercourse of the people. 3. By taking care that necessary communications be performed without contact. 4. By making such arrangements and provisions as may render it easy for the families remaining to shut themselves up in their own houses. 5. By allowing persons to quit houses in which an infection appears, upon condition that they go into lazarettoes. 6. By ventilating and purifying, or destroying, at the public expense, all infected goods. Lastly, By avoiding hospitals, and providing separate apartments for infected persons.

The execution of these measures will require great authority, and much vigilance and attention on the part of the magistrate; but it is not our province to enter into any detail on the subject of the public police.

DCLXXVI. The fourth and last part of the business of prevention, respects the conduct of persons necessarily remaining in infected places, especially of those obliged to have some communication with persons infected.

DCLXXVII. Of those obliged to remain in infected places, but not obliged to have any near communication with the sick, they may be preserved from the contagion by avoiding all near communication with other persons, or their goods; and it is probable, that a small distance will answer the purpose, if at the same time there be no stream of air, to carry the effluvia of persons or goods to some distance.

DCLXXVIII. For those who are necessarily obliged to have a near communication with the sick, it is proper to let them know, that some of the most powerful contagions do not operate, but when the bodies of men exposed to the contagion are in certain circumstances which render them more liable to be affected by it, or when certain causes concur to excite the power of it; and therefore, by avoiding these circumstances and causes, they may often escape infection.

DCLXXIX. The bodies of men are especially liable to be affected by contagions, when they are anywise considerably weakened by want of food, and even by a scanty diet, or one of little nourishment; by intemperance in drinking, which, when the stupor of intoxication is over, leaves the body in a weakened state; by excess in venery; by great fatigue; or by any considerable evacuation.

DCLXXX. The causes which, concurring with contagion, render it more certainly active, are cold, fear, and full living.

The several means, therefore, of avoiding or guarding against the action of cold (XCIV. to XCVI.) are to be carefully studied.

DCLXXXI. Against fear the mind is to be fortified as well as possible, by inspiring a favourable idea of the power of preservative means; by destroying the opinion of the incurable nature of the disease; by occupying men's minds with business or labour; and by avoiding all objects of fear, as funerals, passing bells, and any notice of the death of particular friends.

DCLXXXII. A full diet of animal food increases the irritability of the body, and favours the operation of contagion; and indigestion, whether from the quantity or quality of food, has the same effect.

DCLXXXIII. Besides giving attention to obviate the several circumstances (DCX. DCLXXIX. to DCLXXXII.) which favour the operation of contagion, it is probable that some means may be employed for strengthening the bodies of men, and thereby enabling them to resist contagion.

For this purpose, it is probable, that the moderate use of wine, or of spirituous liquors, may have a good effect.

It is probable also, that exercise, when it can be employed, if so moderate as to be neither heating nor fatiguing to the body, may be employed with advantage.

Persons who have tried cold bathing, and commonly feel invigorating effects from it, if they are anywise secure against having already received infection, may possibly be enabled to resist it by the use of the cold bath.

It is probable, that some medicines also may be useful in enabling men to resist infection: but amongst these I can hardly admit the numerous alexipharmics formerly proposed; or, at least very few of them, and those only of tonic power. Amongst these last we reckon the Peruvian bark; and it is perhaps the most effectual. If any thing is to be expected from antiseptics, I think camphire, whether internally or externally employed, is one of the most promising.

Every person is to be indulged in the use of any means of preservation of which he has conceived a good opinion, whether it be a charm or a medicine, if the latter be not directly hurtful.

Whether issues be useful in preserving from, or in moderating the effects of contagion, I cannot determine from the observations I have yet read.

DCLXXXIV. As neither the atmosphere in general, nor any considerable portion of it, is tainted or impregnated with the matter of contagions; so the lighting of fires over a great part of the infected city, or other general fumigations in the open air, are of no use for preventing the disease, and may perhaps be hurtful.

DCLXXXV. It would probably contribute much to check the progress of infection, if the poor were enjoined to make a frequent change of clothing, and were suitably provided for that purpose; and if they were, at the same time, induced to make a frequent ventilation of their houses and furniture.

SECT. III.—OF THE CURE OF THE PLAGUE.

DCLXXXVI. In the cure of the plague, the indications are the same as those of fever in general (CXXVI.); but here they are not all equally necessary and important.

DCLXXXVII. The measures for moderating the violence of reaction, which operate by diminishing the action of the heart and arteries (CXXVIII.), have seldom any place here, excepting so far as the antiphlogistic regimen is generally proper. Some physicians, indeed, have recommended bleeding; and there may occur cases in which bleeding may be useful; but, for the most part, it is unnecessary, and in many cases it might be very hurtful.

Purging has also been recommended: and, in some degree, it may be useful in drawing off the bile, or other putrescent matters frequently present in the intestines; but a large evacuation this way may certainly be hurtful.

DCLXXXVIII. The moderating the violence of reaction, so far as it can be done by taking off the spasm of the extreme vessels (CLI.), is a measure of the utmost necessity in the cure of the plague; and the whole of the means (CLII. to CC.) suited to this indication are extremely proper.

DCLXXXIX. The giving an emetic at the very first approach of the disease, would probably be of great service; and it is likely, that at some other periods of the disease emetics might be useful, both by evacuating bile abundant in the alimentary canal, and by taking off the spasm of the extreme vessels.

DCXC. From some principles with respect to fever in general, and with respect to the plague in particular, I am of opinion, that, after the exhibition of the first vomit, the body should be disposed to sweat; which ought to be raised to a moderate degree only, but continued for at least twenty-four hours, or longer, if the patient bear it easily.

DCXCI. The sweating should be excited and conducted agreeably to the rules laid down in CLXVIII. It is to be promoted by the plentiful use of diluents, rendered more grateful by vegetable acids, or more powerful by being impregnated with some portion of neutral salts.

DCXCII. To support the patient under the continuance of the sweat, a little weak broth, acidulated with juice of lemons, may be given frequently; and sometimes a little wine, if the heat of the body be not considerable.

DCXCIII. If sudorific medicines are judged to be necessary, opiates are the most effectual and safe: but they should not be combined with aromatics; and probably may be more effectual, if joined with a portion of emetics, and of neutral salts.

DCXCIV. If, notwithstanding the use of emetics and sudorifics, the disease should still continue, the cure must depend upon the employment of means for obviating debility and putrescency; and, for this purpose, the various remedies proposed above (from CCI. to CCXXVII.) may all be administered, but especially the tonics; and of those the chief are cold drink and the Peruvian bark.

DCXCV. In the cure of the plague, some attention is due to the management of buboes and carbuncles: but we do not touch this, as it belongs to the province of surgery.

CHAP. VI.—ERYSIPELAS, OR ST. ANTHONY'S FIRE.

DCXCVI. In CCLXXIV. I mentioned the distinction which I proposed to make between the diseases to be named the Erythema and the Erysipelas; and from thence it will appear, that Erysipelas, as an Erythema following fever, may have its place here.

DCXCVII. I suppose the Erysipelas to depend on a matter generated within the body, and which, analogous to the other cases of exanthemata, is, in consequence of fever, thrown out upon the surface of the body. I own it may be difficult to apply this to every particular case of Erysipelas: but I take the case in which it is generally supposed to apply, that of the Erysipelas of the face; which I shall therefore consider here.

DCXCVIII. The Erysipelas of the face comes on with a cold shivering, and other symptoms of pyrexia. The hot stage of this is frequently attended with a confusion of head, and some degree of delirium; and almost always with drowsiness, or perhaps coma. The pulse is always frequent, and commonly full and hard.

DCXCIX. When these symptoms have continued for one, two, or at most three days, there appears, on some part of the face, a redness, such as that described in CCLXXV. as the appearance of Erythema. This redness, at first, is of no great extent; but gradually spreads from the part it first occupied to the other parts of the face, commonly till it has affected the whole; and frequently from the face it spreads over the hairy scalp, or descends on some part of the neck. As the redness spreads, it commonly disappears, or at least decreases, in the parts it had before occupied. All the parts upon which the redness appears, are, at the same time, affected with some swelling, which continues for some time after the redness has abated. The whole face becomes considerably turgid; and the eye-lids are often so much swelled as entirely to shut up the eyes.

DCC. When the redness and swelling have proceeded for some time, there commonly arise, sooner or later, blisters of a larger or smaller size, on several parts of the face. These contain a thin yellowish or almost colourless liquor, which sooner or later runs out. The surface of the skin in the blistered places, sometimes becomes livid and blackish; but this livor seldom goes deeper than the surface, or discovers any degree of gangrene affecting the skin. On the parts of the surface not affected with blisters, the cuticle suffers towards the end of the disease a considerable desquamation.

Sometimes the tumour of the eye-lids ends in a suppuration.

DCCI. The inflammation coming upon the face does not produce any remission of the fever, which had before prevailed; and sometimes the fever increases with the increasing and spreading inflammation.

DCCII. The inflammation usually continues for eight or ten days; and, for the same time, the fever and symptoms attending it also continue.

DCCIII. In the progress of the inflammation, the delirium and coma attending it sometimes go on increasing, and the patient dies apoplectic on the seventh, ninth, or the eleventh day of the disease. In such cases, it has been commonly supposed that the disease is translated from the external to the internal parts. But I have not seen any instance in which it did not appear to me, that the affection of the brain was merely a communication of the external affection, as this continued increasing at the same time with the internal.

"Another circumstance which belongs to Erysipelas, or is commonly supposed to belong to it, is, that it is of a moveable nature, readily admitting of a translation from one part of the body to another very distant. I have seen extremely few instances of this kind; yet from the frequent accounts of authors, we may suppose that they occur.

"I have only to observe, that there is one translation which has been very much noticed, viz. the translation from the face to the internal parts of the brain. So far as I can observe, this has been improperly called a translation; it is no more to me than a communication, which may be readily expected from the connexion between the external and internal carotids. I conclude so from hence, that in a very great number of cases where I have seen it taking place, the two affections constantly subsisted at the same time; that is to say, the brain was affected by the symptoms of delirium or stupor, but at the same time the Erysipelas on the face continued as full and considerable as it was before. It is only on this account that Erysipelas on the face is a dangerous disease, while very little danger attends it while affecting the extremities."

DCCIV. When the fatal event does not take place, the inflammation, after having affected a part, commonly the whole of the face, and perhaps the other external parts of the head, ceases. With the inflammation, the fever also ceases; and, without any evident crisis, the patient returns to his ordinary state of health.

DCCV. This disease is not commonly contagious; but as it may arise from an acrid matter externally applied, so it is possible that the disease may sometimes be communicated from one person to another.

Persons who have once laboured under this disease are liable to returns of it.

DCCVI. The event of this disease may be foreseen from the state of the symptoms which denote more or less affection of the brain. If neither delirum nor coma come on, the disease is seldom attended with any danger; but when these symptoms appear early in the desease, and are in a considerable degree, the utmost danger is to be apprehended.

DCCVII. As this disease often arises in the part, at the same time with the coming on of the pyrexia; as I have known it, with all its symptoms, arise from an acrimony applied to the part; as it is commonly attended with a full, and frequently a hard pulse; as the blood drawn in this disease shows the same crust upon its surface that appears in the phlegmasiæ; and, lastly, as the swelling of the eye-lids, in this disease, frequently ends in a suppuration; so, from these considerations, it seems doubtful if this disease be properly, in Nosology, separated from the Phlegmasiæ. At any rate, I take the disease I have described to be what physicians have named the Erysipelas phlegmonodes, and that it partakes a great deal of the nature of the Phlegmasiæ.

"It is a common, but not well-founded principle, that what takes place in the exanthemata is a necessary circumstance to the expulsion of morbific matter, and that we are therefore to be very cautious in employing blood-letting, lest it should weaken the *vis insita* necessary for the expulsion of that matter. Upon this principle many practitioners have either avoided blood-letting altogether, or were very cautious with regard to it. We have now, I may say, got over that prejudice. With regard to Erysipelas, nothing is more evident, than that it is not an exanthema like the others, because the fever does not cease upon the eruption; on the contrary, the fever very often supervenes upon the topical affection; and though it does not, and exists previously, we find that it not only continues to subsist with the topical affection, but increases in the same proportion. I think, therefore, that bleeding is as necessary here as in any phlegmasiæ, where we allow the fever to depend upon the topical affection: and further, not only on the first appearance of suspicion, but at any time in the after progress of Erysipelas, bleeding may be practised, and is necessary, in proportion to the degree of the fever attending, and to the violence of the topical inflammation. The practice in this part of the world, in this respect, is so commonly established, that I need not add any thing further."

DCCVIII. Upon this conclusion, the Erysipelas of the face is to be cured very much in the same manner as phlegmonic inflammations, by blood-letting, cooling purgatives, and by employing every part of the antiphlogistic regimen; and our experience has confirmed the fitness of this method of cure.—"I have here followed Sydenham very exactly."

DCCIX. The evacuations of blood-letting and purging, are to be employed more or less according to the urgency of symptoms, particularly those of the pyrexia, and of those which mark an affection of the brain. As the pyrexia continues, and often increases with the inflammation of the face; so the evacuations mentioned may be employed at any time in the course of the disease.

"This is the fundamental doctrine with regard to the practice. Bleeding is the remedy to be employed, so long as the intensity and spreading of the inflammation or the attendant fever require it, without regard to the time of the disease. The Erysipelas spreading is of little consequence, when there is no fever, or when the fever abates, and particularly when the redness does not continue on the parts formerly occupied.

"I have heard of late, with regard to this subject, of different opinions of some very excellent physicians, some London practitioners, who tell us that the Erysipelas faciei is to be cured by the bark: I cannot pretend to judge till I see the particular cases, and I can imagine that there are cases which are not phlegmonic erysipelas, but on the contrary arise from the effusion of an acrid humour which is remarkably disposed to turn into gangrene: but in this country I have not met with one case of this kind, and of fifty cases, I have seen forty cured by bleeding as plainly as any phlegmasia whatever. I have had cases which proved fatal, but these were few, and evidently with a communication to the internal carotid arteries; and perhaps they were only to be overcome by this same venesection."

DCCX. In this, as in other diseases of the head, it is proper to put the patient, as often as he can easily bear it, into somewhat of an erect posture.

DCCXI. As in this disease there is always an external affection, and as in many instances there is no other; so various external applications to the part affected have been proposed; but almost all of them are of a doubtful effect. The narcotic, refrigerant, and astringent applications are suspected of disposing to gangrene; spiritous applications seem to increase the inflammation, and all oily or watery applications seem to occasion its spreading. The application that seems most safe, and which is now most commonly employed, is that of a dry mealy powder frequently sprinkled upon the inflamed parts.

"Powdered chalk tolerably answers the purpose of absorption, where there is no considerable exudation; but where the exudation is great, it is apt to form hard crusts with it, which are troublesome. We generally prefer, therefore, mealy powders, or any matter which is entirely mealy and perfectly dry, but, if I mistake not, not of the finest kind. I would say, that our oatmeal, when perfectly free from all parts of the husk, affords a fitter powder than what is commonly called flour, which, from its fineness is more apt to run into paste with the moisture."

DCCXII. An Erysipelas phlegmonodes frequently appears on other parts of the body beside the face; and such other erysipelatous inflammations frequently end in suppuration. These cases are seldom dangerous. At coming on, they are sometimes attended with drowsiness, and even with some delirium; but this rarely happens; and these symptoms do not continue after the inflammation is formed. I have never seen an instance of the translation of this inflammation from the limbs to an internal part; and though these inflammations of the limbs be attended with pyrexia, they seldom require the same evacuations as the erysipelas of the face. At first they are to be treated by dry mealy applications only; and all humid applications, as fomentations, or poultices, are not to be applied, till, by the continuance of the disease, by the increase of swelling, or by a throbbing felt in the part, it appears that the disease is proceeding to suppuration.

DCCXIII. We have hitherto considered erysipelas as in a great measure of a phlegmonic nature; and, agreeably to that opinion, we have proposed our method of cure. But it is probable, that an erysipelas is sometimes attended with, or is a symptom of a putrid fever; and, in such cases, the evacuations proposed above may be improper, and the use of the Peruvian bark may be necessary; but I cannot be explicit upon this subject, as such putrid cases have not come under my observation.

" A considerable difference will arise from considering the fever which accompanies erysipelas, whether it is a Synocha, as we have said in the character, or a Typhus, as has been supposed by some. In the character I have followed my own observation, giving what is the most common case. But I am far from being positive that I am right in mentioning this as universal. There are cases of erysipelas with circumstances which make us presume that they are properly exanthemata, and where the appearance of the eruption at a determined period, and other circumstances, point out a contagious nature; and many of these are accompanied by typhus. But I must also observe, that we frequently have, as every body knows, erysipelas without any sensible general fever attending it. I have seen many cases where erythema was at first without any fever, but afterwards the topical affection, becoming more general, produced general fever to a great degree."

I have very constantly found erysipelas to be more or less of the phlegmonic kind; and in this country I have hardly seen it in any degree putrid. In erysipelas I have therefore found the bark generally hurtful; but from the account of authors, it appears to be sometimes of a putrid nature, although, as I judge, especially, perhaps only, when it accompanies other diseases of a putrid kind; and in such cases the bark may be a necessary remedy.—*M.M.*

"I have had occasion to observe the Erysipelas phlyctænodes (See *Synops. Nosol.* gen. XXXI., sp. 2.), but I am pretty sure it is a much rarer occurrence in this than even in our neighbouring country of England. It must be comprehended under the same genus of Erysipelas; but I imagine that, in several respects, the more inconsiderable fever which commonly attends it, the parts which it occupies, viz. the trunk of the body, and the particular appearances, make it justly considered as a different species. The only author who has with pains and accuracy described it, is Dr. Russell in his work 'de tabe glandularum.'"

CHAP. VII.—OF THE MILIARY FEVER.

DCCXIV. This disease is said to have been unknown to the ancients, and that it appeared, for the first time, in Saxony, about the middle of the last century. It is said to have spread from thence into all other parts of Europe; and, since the period mentioned, to have appeared in many countries in which it had never appeared before.

"Among the uncertain accounts which we have in authors on this subject, nothing has been more common than their confounding the miliary eruptions with the petechiæ; and they have all been called by the common name of Purpura. There is some sort of foundation for maintaining the connexion, as the same kind of putrid fever is sometimes attended with the one, and sometimes with the other eruption; but the proper petechiæ are always much more expressive of putrefaction than the miliaria."

DCCXV. From the time of its having been first particularly observed, it has been described and treated of by many different writers; and by all of them, till very lately, has been considered as a peculiar idiopathic disease.

It is said to have been constantly attended with peculiar symptoms. It comes on with a cold stage, which is often considerable. The hot stage, which succeeds, is attended with great anxiety, and frequent sighing. The heat of the body becomes great, and soon produces profuse sweating; preceded, however, by a sense of pricking, as of pin-points, in the skin; and the sweat is of a peculiarly rank and disagreeable odour. The eruption appears sooner or later in different persons, but at no determined period of the disease. It seldom or never appears on the face; but discovers itself first upon the neck and breast, and from thence often spreads over the whole body.

DCCXVI. The eruption named Miliary is said to be of two kinds, the one named the Red, the other the White Miliary. The former, which in English is strictly named a Rash, is commonly allowed to be a symptomatic affection; and as the latter is the only one that has any pretensions to be considered as an idiopathic disease, it is this alone that I shall more particularly describe and treat of in the present chapter.

DCCXVII. What then is called the White Miliary eruption, appears at first like the red, in very small red pimples, for the most part distinct, but sometimes clustered together. Their slight prominence is distinguished better by the finge than by the eye. Soon after the appearance of this eruption and at least on the second day, a small vesicle appears upon the top of each pimple. At first the vesicle is whey-coloured; but soon becomes white, and stands out like a little globule on the top of the pimple. In two or three days, these globules break, or are rubbed off; and are succeeded by small crusts, which soon after fall off in small scales. While one set of pimples takes this course, another set succeeds; so that the disease often continues upon the skin for many days together. Sometimes when one crop of this eruption has disappeared, another, after some interval, is produced. And it has been further observed, that in some persons there is such a tendency to this disease, that they have been affected with it several times in the course of their lives.

DCCXVIII. This disease is said to affect both sexes, and persons of all ages and constitutions; but it has been observed at all times, to affect, especially and most frequently, lying-in women.

DCCXIX. This disease is often accompanied with violent symptoms, and has frequently proved fatal. The symptoms attending it are, however, very various. They are, in one or other instance, all the several symptoms attending febrile diseases; but I cannot find that any symptom or concourse of symptoms are steadily the same in different persons, so as to furnish any specific character to the disease. When the disease is violent, the most common symptoms are phrenitic, comatose, and convulsive affections, which are also symptoms of all fevers treated by a very warm regimen.

DCCXX. While there is such a variety of symptoms appearing in this disease, it is not to be expected that any one particular method of cure can be proposed: and accordingly we find, in different writers, different methods and remedies prescribed; frequent disputes about the most proper; and those received and practised by some, opposed and rejected by others.

DCCXXI. I have thus given an account of what I have found delivered by authors who have considered the white miliary fever as an idiopathic disease; but, now, after having often observed the disease, I must say that I doubt much if it ever be such an idiopathic as has been supposed, and I suspect that there is much fallacy in what has been written on the subject.

DCCXXII. It seems to me very improbable, that this should have been really a new disease when it was first considered as such. There appear to me very clear traces of it in authors who wrote long before that period; and, though there were not, we know that the descriptions of the ancients were inaccurate and imperfect, particularly with respect to cutaneous affections; while we know also very well, that those affections which usually appeared as symptomatic only, were commonly neglected, or confounded together under a general appellation.

DCCXXIII. The antecedent symptoms of anxiety, sighing, and pricking of the skin, which have been spoken of as peculiar to this disease, are, however, common to many others; and, perhaps, to all those in which sweatings are forced out by a warm regimen.

Of the symptoms said to be concomitant of this eruption, there are none which can be said to be constant and peculiar but that of sweating. This, indeed, always precedes and accompanies this eruption; and, while the miliary eruption attends many different diseases, it never, however, appears in any of these, but after sweating; and, in persons labouring under these diseases, it does not appear, if sweating be avoided. It is therefore probable, that the eruption is the effect of sweating; and that it is the produce of a matter not before prevailing in the mass of blood, but generated, under particular circumstances, in the skin itself. That it depends upon particular circumstances of the skin, appears further from hence, that the eruption seldom or never appears upon the face, although it affects the whole of the body besides; that it comes upon those places especially which are more closely covered; and that it can be brought out upon particular parts by external applications.

DCCXXIV. It is to be observed, that this eruptive disease differs from the other exanthemata in many circumstances; in its not being contagious, and therefore never epidemic; "and if certain epidemics are more certainly attended with it, I can impute it to this, that in these epidemics those circumstances occur, which occasion this, as they do other eruptions;"—that the eruption appears at no determined period of the disease;—"sometimes it appears in the course of the first paroxysm, sometimes not till the eighth or ninth;"—that the eruption has no determined duration;—"sometimes it disappears very quickly; at other times it remains for a great number of days;"—that successive eruptions frequently appear in the course of the same fever; and that such eruptions frequently recur in the course of the same person's life.

All these circumstances render it extremely probable, that, in the miliary fever, the morbific matter is not a subsiding contagion communicated to the blood, and thence, in consequence of fever and assimilation, thrown out upon the surface of the body; but a matter occasionally produced in the skin itself by sweating.

DCCXXV. This conclusion is further rendered probable from hence, that, while the miliary eruption has no peculiar symptoms, or concourse of symptoms, belonging to it; yet, upon occasion, it accompanies almost all febrile diseases, whether inflammatory or putrid, if these happen to be attended with sweating; and from thence it may be presumed, that the miliary eruption is a symptomatic affection only, produced in the manner we have said.

"The epidemic catarrh, *catarrhus a contagio*, of which we shall speak afterwards, has very frequently this miliary eruption; I have seen it in inflammatory diseases, such as rheumatism, wherever these were accompanied with much sweating; and it is certainly a frequent occurrence in different intermittent fevers: but its most frequent occurrence is in childbed women."

DCCXXVI. But, as this symptomatic affection does not always accompany every instance of sweating, it may be proper to inquire, what are the circumstances which especially determine this eruption to appear? To this, however, I can give no full and proper answer. I cannot say that there is any one circumstance which in all cases gives occasion to this eruption; nor can I say what different causes may, in different cases, give occasion to it. There is only one observation I can offer to the purpose of this inquiry; and it is, that, of the persons sweating under febrile diseases, those are especially liable to the miliary eruption, who have been previously weakened by large evacuations, particularly of blood. This will explain why it happens to lying-in women more frequently than to any other persons;

and to confirm this explanation, I have remarked, that the eruption happened to women not in childbed, but who had been much subjected to a frequent and copious menstruation, and to an almost constant fluor albus. I have also had occasion to observe it happen to men in fevers, after wounds from which they had suffered a great loss of blood.

Further, that this eruption is produced by a certain state of debility, will appear probable, from its often occurring in fevers of the putrid kind, which are always attended with great debility. It is true, that it also sometimes attends inflammatory diseases, when it cannot be accounted for in the same manner; but I believe it will be found to attend especially those inflammatory diseases in which the sweats have been long protracted or frequently repeated, and which have thereby produced a debility, and perhaps a debilitating putrid diathesis.

DCCXXVII. It appears so clearly to me that this eruption is always a symptomatic and factitious affection, that I am persuaded it may be in most cases prevented merely by avoiding sweats. Spontaneous sweatings, in the beginning of diseases, are very rarely critical; all sweatings, not evidently critical, should be prevented; and the promoting them, by increasing external heat, is commonly very pernicious. Even critica sweats should hardly be encouraged by such means. If, therefore, spontaneous sweats arise, they are to be checked by th coolness of the chamber; by the lightness and looseness of th bedclothes; by the persons laying out their hands and arms and by their taking cold drink: and, by these precautions, I thin I have frequently prevented miliary eruptions, which were othe wise likely to have appeared, particularly in lying-in women.

DCCXXVIII. But it may happen, when these precaution have been neglected, or from other circumstances, that a miliar eruption does actually appear; and the question will then be pu how the case is to be treated? It is a question of consequenc because I believe that the matter here generated is often of virulent kind; it is frequently the offspring of putrescenc and, when treated by increasing the external heat of the bod it seems to acquire a virulence which produces those sympto mentioned in DCCXIX., and proves certainly fatal.

It has been an unhappy opinion with most physicians, th eruptive diseases were ready to be hurt by cold; and that it was, therefore, necessary to cover up the body very closely, so as thereby to increase the external heat. We now know that this is a mistaken opinion; that increasing the external heat of the body is very generally mischievous; and that several eruptions not only admit, but require the application of cold air. We are now persuaded, that the practice which formerly prevailed, in the case of miliary eruptions, of covering up the body close, and, both by external means and internal remedies, encouraging the sweatings which accompany this eruption, was highly pernicious, and commonly fatal. I am therefore of opinion, even when a miliary eruption has appeared, that in all cases where the sweating is not manifestly critical, we should employ all the several means of stopping it that are mentioned above; and I have sometimes had occasion to observe, that even the admission of cool air was safe and useful.

DCCXXIX. This is, in general, the treatment of miliary eruptions; but, at the same time, the remedies suited to the primary disease are to be employed; and, therefore, when the eruption happens to accompany inflammatory affections, and when the fulness and hardness of the pulse or other symptoms show an inflammatory state present, the case is to be treated by blood-letting, purging, and other antiphlogistic remedies.

Upon the other hand, when the miliary eruption attends diseases in which debility and putrescency prevail, it will be proper to avoid all evacuations, and employ tonic and antiseptic remedies, particularly the Peruvian bark, cold drink, and cold air.

I shall conclude this subject with mentioning, that the venerable octogenarian practitioner, de Fischer, when treating of this subject, in laying down the indications of the cure, has given this as one of them: "Excretionis periphericæ non primariam habere rationem."

CHAP. VIII.—OF THE REMAINING EXANTHEMATA: URTICARIA, PEMPHIGUS, AND APHTHA.

DCCXXX. The Nettle Rash is a name applied to two different diseases. The one is the chronic eruption described by Dr. Heberden in the Medical Transactions, Vol. I. art. xvii., which, as not being a febrile disorder, does not belong to this place. The other is the Urticaria of our Synopsis, which, as taken into every system of Nosology as one of the Exanthemata febrilia, is properly to be treated of here.

DCCXXXI. I have never observed this disease as contagious and epidemic: and the few sporadic cases of it which have occurred to me, have seldom taken the regular course described by authors. At the same time, as the accounts of different authors are not very uniform, and hardly consistent, I cannot enter further into the consideration of this subject; and I hope it is not very necessary, as on all hands it is agreed to be a mild disease, and such as seldom requires the use of remedies. It is generally sufficient to observe an antiphlogistic regimen, and to keep the patient in a temperature that is neither hot nor cold.

"I have never seen Urticaria but as a symptomatic affection; and I think that even Dr. Sydenham's account of it amounts to the same. It may, however, be a specific contagion, but I have never seen it in any degree epidemic, except at such seasons in which the Scarlatina, Erysipelas, Miliaria, and other eruptions were frequent. Wherever it occurs I think it is to be considered as somewhat inflammatory, we are to avoid a warm regimen, observe a cool one; and, if symptoms of considerable fever occur, we are to have recourse to blood-letting."

DCCXXXII. The Pemphigus or Vesicular Fever is a rare and uncommon disease, and very few instances of it are recorded in the writings of physicians. As I have never had occasion to see it, it would be improper for me to treat of it; and I do not choose to repeat after others, while the disease has yet been little observed, and its character does not seem to be exactly ascertained.—(*Vid. Acta Helvetica*, vol. ii. p. 260. *Synops. Nosolog.* gen. XXXIV.)

"I may here observe, that we have in this country a disease frequent among the common people, under the name of *Blibes*, which produces pretty large blisters. They are from the beginning from the size of a pea to that of a hazle nut, and some larger; they appear after a very slight fever. They are full of a clear watery liquor, not changeable into pus; these break in a day or two, and the cuticle falls off in scales. It has also occurred to Sauvages; but so far as I have seen it, it is a slight affection, and requires no particular remedy."

DCCXXXIII. The Aphtha, or Thrush, is a disease better known; and, as it commonly appears in infants, it is so well understood as not to need our treating of it here. As an idiopathic disease, affecting adults, I have not seen it in this country: but it seems to be more frequent in Holland; and therefore, for the study of it, I refer to Dr. Boerhaave, and his commentator Van Swieten, whose works are in every body's hands.

"The Aphthæ may be considered as exudations from inflammations; but they have connexion with the mucous excretories, by this singular circumstance, that they appear on the pudenda as well as in the mouth.

"With a view to practice, the question is, if they are idiopathic or symptomatic.

"In adults, I have said, I have never seen the disease idiopathic; and in infants I cannot consider it as febrile, and depending on a matter in the mass of the blood; but as a topical affection, from the first impression of the air on the mucous excretories, always within the first months.

"With respect to adults, it may be in Holland an idiopathic disease, but for that we have but one author, Ketelaer, and those who have copied from him. Van Swieten has this singular fact, that the disease does not occur in southern climates; but that must be as an idiopathic, for the authors of Italy, France, and Spain, mention the symptomatic aphtha.

"For the treatment of the idiopathic, I must refer to Van Swieten. My observations, as to the symptomatic, are, that I have known it in three cases: first, as attending hectics; secondly, as affecting old and fatal dysenteries; and, thirdly, as appearing at the end of several fevers. In the first two instances, it admits of no remedy; in the last, the remedy of Sydenham is the bark, confirmed by Van Swieten, and by what observation we have had.

"In the case of infants it is often spontaneously cured, and needs nothing but the *Mel Rosarum.* When it is more considerable, some detergents may be employed, but not early, as the aphthæ return. Alum was formerly the remedy, but borax is more effectual and safe."

DCCXXXIV. The Petechia has been, by all our Nosologists, enumerated amongst the exanthemata; but as, according to the opinion of most physicians, it is very justly held to be always a symptomatic affection only, I cannot give it a place here.

BOOK IV.—OF HÆMORRHAGIES.

CHAP. I.—OF HÆMORRHAGY IN GENERAL.

DCCXXXV. In establishing a class or order of diseases under the title of *Hæmorrhagies*, Nosologists have employed the single circumstance of an effusion of red blood, as the character of such a class or order. By this means they have associated diseases which in their nature are very different; but in every methodical distribution, such arbitrary and unnatural associations should be avoided as much possible. Further, by that management Nosologists have suppressed or lost sight of an established and well-founded distinction of hæmorrhagies into Active and Passive.

DCCXXXVI. It is my design to restore this distinction; and I shall, therefore, here, under the title of Hæmorrhagies, comprehend those only which have been commonly called Active, that is, those attended with some degree of pyrexia; which seem always to depend upon an increased impetus of the blood in the vessels pouring it out, and which chiefly arise from an internal cause. In this I follow Dr. Hoffmann, who joins the active hæmorrhagies with the febrile diseases, and have accordingly established these hæmorrhagies as an order in the class of Pyrexiæ. From this order I exclude all those effusions of red blood that are owing entirely to external violence; and all those which, though arising from internal causes, are, however, not attended with pyrexia, and which seem to be owing to a putrid fluidity of the blood, and to the weakness or to the erosion of the vessels, rather than to any increased impetus of the blood in them.

DCCXXXVII. Before proceeding to treat of those proper hæmorrhagies which form an order in our Nosology, I shall treat of active hæmorrhagy in general; and indeed the several genera and species to be treated of particularly afterwards, have so many circumstances in common with one another, that the general considerations to be now offered, will prove both proper and useful.

SECTION I.—OF THE PHENOMENA OF HÆMORRHAGY.

DCCXXXVIII. The phenomena of hæmorrhagy are generally the following.

Hæmorrhagies happen especially in plethoric habits, and to persons of a sanguine temperament. They appear most commonly in the spring, or in the beginning of summer.

For some time, longer or shorter in different cases, before the blood flows, there are some symptoms of fulness and tension about the parts from whence the blood is to issue. In such parts as fall under our view, there are some redness, swelling, and sense of heat or of itching; and in the internal parts, from which blood is to flow, there is a sense of weight and heat; and in both cases various pains are often felt in the neighbouring parts.

DCCXXXIX. When these symptoms have subsisted for some time, some degree of a cold stage of pyrexia comes on, and a hot stage is formed, during which the blood flows of a florid colour, in a greater or lesser quantity, and continues to flow for a longer or shorter time; but commonly, after some time, the effusion spontaneously ceases, and, together with it, the pyrexia also.

DCCXL. During the hot stage which precedes an hæmorrhagy, the pulse is frequent, quick, full, and often hard; but as the blood flows, the pulse becomes softer and less frequent.

DCCXLI. In hæmorrhagies, blood drawn from a vein does, upon its concreting, commonly show the gluten separated, or a crust formed, as in the cases of Phlegmasiæ.

DCCXLII. Hæmorrhagies, from internal causes, having once happened, are apt, after a certain interval, to return—in some cases very often, and frequently at stated periods.

DCCXLIII. These are, in general, the phenomena of hæmorrhagy; and if in some cases all of them be not exquisitely marked, or if perhaps some of them do not at all appear, it imports only, that in different cases the system is more or less generally affected; and that in some cases there are purely topical hæmorrhagies, as there are purely topical inflammations.

"The febrile affection of the system does not always occur; but the other is the more common case, and it amounts to this: that there may be a topical hæmorrhagy as well as a topical inflammation; but as it is the obvious and ordinary consequence of inflammation in a particular part to produce fever in the whole system, so it is the same with regard to hæmorrhagy: we can conceive however, that in certain systems, from certain circumstances, as their being less irritable, or perhaps owing to topical affections, it is not always thus communicated; but this does not change any thing in the nature of the case: it will appear at least, that where the general fever does not occur, there is an increased action and impetus of the vessels, which is commonly perceived by a greater fulness and throbbing pulsations in the neighbourhood of the part. This leads me to observe, that the theories of inflammation and of hæmorrhagy are very nearly the same, both of them seemingly depending upon a previous congestion."

SECTION II.—OF THE PROXIMATE CAUSE OF HÆMORRHAGY.

DCCXLIV. The pathology of hæmorrhagy seems to be sufficiently obvious. Some inequality in the distribution of the blood occasions a congestion in particular parts of the sanguiferous system, that is, a greater quantity of blood is poured into certain vessels than their natural capacity is suited to receive. These vessels become thereby preternaturally distended; and this distention proving a stimulus to them, excites their action to a greater degree than usual, which, pushing the blood with unusual force into the extremities of these vessels, opens them by anastomosis, or rupture; and if these extremities be loosely situated on external surfaces, or on the internal surfaces of certain cavities that open outwardly, a quantity of blood flows out of the body.

DCCXLV. This reasoning will, in some measure, explain the production of hæmorrhagy. But it appears to me, that, in most cases, there are some other circumstances that concur to produce it: for it is probable, that in consequence of congestion, a sense of resistance arises and excites the action of the Vis Medicatrix Naturæ; the exertions of which are usually made by the formation of a cold stage of pyrexia, inducing a more vigorous action of the vessels; and the concurrence of this exertion more effectually opens the extremities, and occasions the flowing out of the blood.

"Active hæmorrhagy depends on an increased impetus of the fluids, which is always founded upon a pyrexia; but the foundation of this pyrexia is a previous congestion, from which it appears, that this congestion is the source of all the phenomena."

DCCXLVI. What has been delivered in the two preceding paragraphs, seems to explain the whole phenomena of hæmorrhagy, except the circumstance of its frequent recurrence, which I apprehend may be explained in the following manner. The congestion and consequent irritation being taken off by the flowing of the blood, this, therefore, soon after, spontaneously ceases; but, at the same time, the internal causes which had before produced the unequal distribution of the blood, commonly remain, and must now operate the more readily, as the overstretched and relaxed vessels of the part will more easily admit of a congestion of blood in them, and, consequently, produce the same series of phenomena as before.

DCCXLVII. This may sufficiently explain the ordinary return of hæmorrhagy; but there is still another circumstance, which, as commonly concurring, is to be taken notice of; and that is, the general plethoric state of the system, which renders every cause of unequal distribution of more considerable effect. Though hæmorrhagy may often depend upon the state of the vessels of a particular part being favourable to a congestion's being formed in them; yet, in order to that state's producing its effect, it is necessary that the whole system should be at least in its natural plethoric condition; and, if this should be in any degree increased beyond what is natural, it will still more certainly determine the effects of topical conformation to take place. The return of hæmorrhagy, therefore, will be more certainly occasioned, if the system becomes preternaturally plethoric; but hæmorrhagy has always a tendency to increase the plethoric state of the system, and, consequently, to occasion its own return.

DCCXLVIII. To show that hæmorrhagy does contribute to produce or increase the plethoric state of the system, it is only necessary to observe, that the quantity of serous fluids being given, the state of the excretions depends upon a certain balance between the force of the larger arteries propelling the blood, and the resistance of the excretories: but the force of the arteries depends upon their fulness and distention, chiefly given to them by the quantity of red globules and gluten, which are, for the greatest part, confined to the red arteries; and, therefore, the *spoliation* made by an hæmorrhagy, being chiefly of red globules and gluten, the effusion of blood must leave the red arteries more empty and weak. In consequence of the weaker action of the red arteries, the excretions are in proportion diminished; and, therefore, the ingesta continuing the same, more fluids will be accumulated in the larger vessels. It is by this means that the loss of blood by hæmorrhagies, whether artificial or spontaneous, if within certain bounds, is commonly so soon recovered; but as the diminution of the excretions, from a less quantity of fluid being impelled into the excretories, gives occasions to these vessels to fall into a contracted state; so, if this shall continue long, these vessels will become more rigid, and will not yield to the same impelling force as before. Although the arteries, therefore, by new blood collected in them, shall have recovered their former fulness, tension, and force, yet this force will not be in balance with the resistance of the more rigid excretories, so as to restore the former state of excretion; and consequently, a farther accumulation will take place in the arteries, and an increase of their plethoric state be thereby induced. In this manner, we perceive more clearly, that hæmorrhagy, as producing a more plethoric state of the system, has a tendency to occasion its own recurrence with greater violence; and, as the renewal and further accumulation of blood require a determinate time, so, in the several repetitions of hæmorrhagy, that time will be nearly the same; and therefore the returns of hæmorrhagy will be commonly at stated periods, as has been observed frequently to happen.

DCCXLIX. I have thus explained the nature of hæmorrhagy in general, as depending upon some inequality in the distribution of the blood, occasioning a congestion of it in particular parts of the sanguiferous system. It is indeed probable, that in most persons, the several parts of the sanguiferous system are in balance with one another; and that the density, and consequently the resistance in the several vessels, is in proportion to the quantity of blood which each should receive; from whence it frequently happens, that no inequality in the distribution of the blood takes place in the course of a long life. If, however, we consider that the sanguiferous system is constantly in a plethoric state, that is, that the vessels are constantly distended beyond that size which they would be of, if free from any distending force, we shall be satisfied that this state may be readily changed. For as on the one hand the vessels are elastic, so as to be under a constant tendency to contract upon the withdrawing of any part of the distending force; and, on the other hand, are not so rigid, but that by an increase of the impetus of the blood in them, they may be more than ordinarily distended; so we can easily understand how, in most persons, causes of an increased contraction or distention may arise in one part or other of the system, or that an unequal distribution may take place; and how, in an exquisitely distended or plethoric system, a small inequality in the distribution of the blood may form those congestions which give occasion to hæmorrhagy.

DCCL. In this manner I endeavour to explain how hæmorrhagy may be occasioned at any period of life, or in any part of the body: but hæmorrhagies happen in certain parts more frequently than in others, and at certain periods of life more readily than at others; and, therefore, in delivering the general doctrine of hæmorrhagy, it may be required that I should explain those circumstances which produce the specialties mentioned; and I shall now attempt it.

DCCLI. The human body, from being of a small bulk at its first formation, grows afterwards to a considerable size. This increase of bulk consists, in a great measure, in the increase of the quantity of fluids, and a proportional enlargement of the containing vessels. But, at the same time, the quantity of solid matter is also gradually increased; and, in whatever manner we may suppose this to be done, it is probable that the progress in the whole of the growth of animal bodies, depends upon the extension of the arterial system; and such is the constitution of the sanguiferous system, that the motion of the blood in the arteries has a constant tendency to extend them in every dimension.

DCCLII. As the state of the animal solid is, at the first formation of the body, very lax and yielding; so the extension of the system proceeds, at first, very fast: but, as the extension gives occasion to the apposition of more matter to the solid parts, these are, in proportion to their extension, constantly acquiring a greater density, and therefore giving more resistance to their further extension and growth. Accordingly, we observe, that as the growth of the body advances, its increase in any given time becomes proportionally less and less, till at length it ceases altogether.

DCCLIII. This is the general idea of the growth of the human body, till it attain the utmost bulk which it is capable of acquiring; but, it is to be remarked, that this growth does not proceed equally in every part of the body, it being requisite for the economy of the system, that certain parts should be first evolved, and should also acquire their full bulk sooner than others. This appears particularly with respect to the head, the parts of which appear to be first evolved, and soonest to acquire their full size.

DCCLIV. To favour this unequal growth, it is presumed, that the dimensions or the laxity of the vessels of the head, or that the direction of the force of the blood, are adapted to the purpose; and from what has been said in DCCLII., it will also certainly follow, that as the vessels of the head grow fastest, and soonest acquire their full size, so they will soonest also acquire that density which will prevent their further extension. While, however, the force of the heart, and the quantity of the fluids, with respect to the whole system, remain the same, the distending and extending powers will be directed to such parts as have not yet acquired the same density and dimensions as those first evolved; and thus the distending and extending powers will proceed to operate till every part of the system, in respect of density and resistance, shall have been brought to be in balance with every other, and till the whole be in balance with the force of the heart, so that there can be no further growth in any particular part, unless some preternatural circumstance shall happen to arise.

DCCLV. In this process of the growth of the body, as it seems in general to depend upon a certain balance between the force of the heart, or distending power, and the resistance of the solids; so it will appear, that, while the solids remain very lax and yielding, some occasional increase of the distending power may arise, without producing any very perceptible disorder in the system. But it will also appear, that, in proportion as the distending power and resistance of the solids come to be more nearly in exact balance with one another, so any increase of the distending power will more readily produce a rupture of vessels, which do not easily yield to extension.

DCCLVI. From all this, it must follow, that the effects of any unusually plethoric state of the system, will be different according as this shall occur at different periods of the growth of the body. Accordingly, it is evident, that if the plethoric state arises while the head is yet growing, and while the determination of the blood is still more to the head than to the other parts, the increased quantity of the blood will be especially determined to the head; and as there also, at the same time, the balance between the distending and extending powers is most nearly adjusted, so the determination of the blood will most readily produce in that part a rupture of the vessels, or an hæmorrhagy. Hence it is, that hæmorrhagies of the nose so frequently happen in young persons; and in these more readily as they approach nearer to their acmé, or full growth; or it may be said, perhaps more properly, as they approach nearer to the age of puberty, when perhaps in both sexes, but especially in the female, a new determination arises in the system.

DCCLVII. The determination of a greater quantity of blood to the vessels of the head, might be supposed to occasion a rupture of vessels in other parts of the head, as well as in the nose: but such a rupture does not commonly happen; because in the nose, there is, for the purpose of sense, a considerable network of blood-vessels expanded on the external surface of the nostrils, and covered only with thin and weak teguments. From this circumstance it is, that upon any increased impetus of the blood in the vessels of the head, those of the nose are most easily broken; and the effusion from the nose taking place, it not only relieves the other extremities of the external carotid, to which the arteries of the nose chiefly belong, but relieves also, in a great measure, the system of the internal carotid. For, from the internal carotid, certain branches are sent to the nose, or spread out on its internal surface, and probably inosculated with the extremities of the external carotid: so that, whichsoever of the extremities are broken, the *vis derivationis* of Haller will take place; the effusion will relieve the whole sanguiferous system of the head; and the same effusion will also commonly prevent an hæmorrhagy happening at the same time in any other part of the body.

DCCLVIII. From these principles, it will appear why hæmorrhagies of the nose, so frequent before the period of puberty, or of the acmé, seldom happen after these periods: and I must observe further, that although they should occur, they would not afford any objection to my doctrine, as such hæmorrhagies might be imputed to a peculiar laxity of the vessels of the nose, and perhaps to a habit acquired with respect to these vessels, while the balance of the system might be otherwise duly adjusted.

DCCLIX. When the process of the growth of the body goes on regularly, and the balance of the system is properly adjusted to the gradual growth of the whole, as well as to the successive growth of the several parts, even a plethoric state does not produce any hæmorrhagy, or at least any after that of the nose; but if, while the plethoric state continues, any inequality shall also subsist in any of the parts of the system, congestions, hæmorrhagic or inflammatory, may be still readily formed.

DCCLX. In general, it may be observed, that, when the several parts of the system of the aorta have attained their full growth, and are duly balanced with one another, if then any considerable degree of plethora remain or arise, the nicety of the balance will be between the systems of the aorta and pulmonary artery, or between the vessels of the lungs and those of all the rest of the body. And although the lesser capacity of the vessels of the lungs is commonly compensated by the greater velocity of the blood in them; yet, if this velocity be not always adjusted to the necessary compensation, it is probable that a plethoric state of the whole body will always be especially felt in the lungs; and, therefore, that an hæmorrhagy, as the effect of a general plethora, may be frequently occasioned in the lungs, even though there be no fault in their conformation.

DCCLXI. In some cases, perhaps, an hæmorrhagy from the lungs, or an hæmoptysis, does arise from the general plethoric state of the body; but an hæmoptysis more frequently does, and may be expected to happen, from a faulty proportion between the capacity of the lungs and that of the rest of the body.

DCCLXII. When such a disproportion takes place, it will be evident, that an hæmoptysis will especially happen about the time that the body is approaching to its acmé; that is, when the system of the aorta has arrived at its utmost extension and resistance, and when, therefore, the plethoric state of the whole must especially affect the lungs.

DCCLXIII. Accordingly, it has been constantly observed, that the hæmoptysis especially occurs about the time of the body's arriving at its acmé; but I must remark also, that the hæmorrhagy may occur sooner or later, according as the balance between the vessels of the lungs, and those of the system of the aorta, happen to be more or less exactly adjusted to one another; and it may therefore often occur much later than the period mentioned, when that balance, though not quite even, is however not so ill adjusted, but that some other concurring causes are necessary to give it effect.

DCCLXIV. It was anciently remarked by Hippocrates, and has been confirmed by modern observation, that the hæmoptysis generally occurs in persons between the age of fifteen and that of five-and-thirty; that it may happen at any time between these two periods; but that it seldom happens before the former, or after the latter; and it may be proper here to inquire into the reason of these two limitations.

DCCLXV. With respect to the first, the reason of it has been already explained in DCCLXII. and DCCLXIII.

With respect to the second limitation, I expect that the reason of it will be understood from the following considerations.

It has been already observed, that the extension and growth of the body require the plethoric state of the arterial system; and nature has provided for this, partly by the constitution of the blood being such, that a great portion of it is unfit to pass into the exhalants and excretories; partly by giving a certain density and resistance to the several exhalants and excretories through which the fluids might pass out of the red arteries; and partly, but especially, by a resistance in the veins to the free passage of the blood into them from the arteries.

DCCLXVI. With respect to this last and chief circumstance, it appears from the experiments of Sir Clifton Wintringham, in his *Experimental Inquiry*, that the proportional density of the coats of the veins to that of the coats of the arteries, is greater in young than in old animals: From which it may be presumed, that the resistance to the passage of the blood from the arteries into the veins, is greater in young animals than in old; and, while this resistance continues, the plethoric state of the arteries must be constantly continued and supported. As however the density of the coats of the vessels, consisting chiefly of a cellular texture, is increased by pressure; so, in proportion as the coats of the arteries are more exposed to pressure by distention than those of the veins, the former, in the progress of the growth of the body, must increase much more in density than the latter; and, therefore, the coats of the arteries, in respect of density and resistance, must come, in time, not only to be in balance with those of the veins, but to prevail over them; a fact which is sufficiently proved by the experiments of the above-mentioned ingenious author.

By these means, the proportional quantities of blood in the arteries and veins must change in the course of life. In younger animals, the quantity of blood in the arteries must be proportionally greater than in old ones; but by the increasing density of the arteries, the quantity of blood in them must be continually diminishing, and that in the veins be proportionally increasing, so as at length to be in a proportionally greater quantity than that in the arteries. When this change happens in the proportional quantities of the blood in the arteries and veins, it must be evident that the plethoric state of the arteries will be in a great measure taken off; and, therefore, that the arterial hæmorrhagy is no longer likely to happen; but that, if a general plethoric state afterwards take place in the system, it must especially appear in the veins.

DCCLXVII. The change I have mentioned to happen in the state of the arterial and venous systems, is properly supposed to take place in the human body about the age of thirty-five, when it is manifest that the vigour of the body, which depends so much upon the fulness and tension of the arterial system, no longer increases; and therefore it is, that the same age is the period, after which the arterial hæmorrhagy, hæmoptysis, hardly every appears. It is true, there are instances of the hæmoptysis happening at a later period; but it is for the reasons given (DCCLVIII.), which show that an hæmorrhagy may happen at any period of life, from accidental causes forming congestions, independent of the state of the balance of the system at that particular period.

DCCLXVIII. I have said (DCCLXVI.), that if, after the age of thirty-five, a general and preternatural plethoric state occur, it must especially appear in the venous system; and I must now observe, that this venous plethora may also give occasion to hæmorrhagy.

DCCLXIX. If a plethoric state of the venous system take place, it is to be presumed, that it will especially and in the first place affect the system of the vena portarum, in which the motion of the venous blood is more slow than elsewhere; in which the motion of the blood is little assisted by external compression; and in which, from the want of valves in the veins that form the vena portarum, the motion of the blood is little assisted by the compression that is applied; while, from the same want of valves in those veins, the blood is more ready to regurgitate in them. Whether any regurgitation of the blood can produce an action in the veins, and which inverted, or directed towards their extremities, can force these, and occasion hæmorrhagy, may perhaps be disputed: but it appears to me that an hæmorrhagy, produced by a plethoric state of the veins, may be explained in another and more probable manner. If the blood be accumulated in the veins, from any interruption of its proper course, that accumulation must resist the free passage of the blood from the arteries into the veins. This again must produce some congestion in the extremities of the red arteries, and therefore some increased action in them, which must be determined with more than usual force, both upon the extremities of the arteries, and upon the exhalants proceeding from them; and this force may occasion an effusion of blood, either by anastomosis or rupture.

DCCLXX. In this manner I apprehend the hæmorrhoidal flux is to be explained, so far as it depends upon the state of the whole system. It appears most commonly to proceed from the extremities of the hæmorrhoidal vessels, which, being the most dependent and distant branches of those veins that form the vena portarum, are therefore the most readily affected by every accumulation of blood in that system of veins, and consequently by any general plethora in the venous system.

DCCLXXI. It is here to be observed, that I have spoken of this hæmorrhagy as proceeding from the hæmorrhoidal vessels only, as indeed it most commonly does; but it will be readily understood, that the same accumulation and resistance to the venous blood, may, from various causes, affect many of the extremities of the vena portarum, which lie very superficially upon the internal surface of the alimentary canal, and give occasion to what has been called the *Morbus niger* or *Melæna.*

DCCLXXII. Another part in which an unusually plethoric state of the veins may have particular effects, and occasion hæmorrhagy, is the head. In this, the venous system is of a peculiar conformation, and such as seems intended by nature to give there a slower motion to the venous blood. If, therefore, the plethoric state of the venous system in general, which seems to increase as life advances, should at length increase to a great degree, it may very readily affect the venous vessels of the head, and produce there such a resistance to the arterial blood, as to determine this to be poured out from the nose, or into the cavity of the cranium. The special effect of the latter effusion will be, to produce the disease termed Apoplexy; and which, therefore, is properly named by Dr. Hoffmann, *Hæmorrhagia Cerebri:* and the explanation of its cause, which I have now given, explains well why it happens especially to men of large heads and short necks, and to men in the decline of life, when the powers promoting the motion of the blood are much weakened.

DCCLXXIII. I have thus attempted to give the history of the plethoric and hæmorrhagic states of the human body, as they occur at the different periods of life; and hope I have thereby explained not only the nature of hæmorrhagy in general, but also of the particular hæmorrhagies which most commonly appear, and as they occur successively at the different periods of life.

SECT. III.—OF THE REMOTE CAUSES OF HÆMORRHAGY.

DCCLXXIV. In the explanation hitherto given, I have especially considered the predisposition to hæmorrhagy; but it is proper also, and even necessary, to take notice of the occasional causes, which not only occur with the predisponent, in exciting hæmorrhagy, but may also sometimes be the sole causes of it.

DCCLXXV. These occasional causes are,—

1. External heat, which, by rarefying the blood, produces or increases the plethoric state of the body; and the same heat, as giving a stimulus to the whole system, must urge any particular determinations before established still further, or may urge to excess any inequality otherwise innocent; so that in either way external heat may immediately excite hæmorrhagies, to which there was a predisposition, or may form congestions where there were none before, and thereby occasion hæmorrhagy.

2. A considerable and sudden diminution of the weight of the atmosphere, which seems to occasion the same effects as heat, by producing also an expansion of the blood.

3. Whatever increases the force of the circulation, and thereby the velocity of the blood, may operate in the same manner as heat, in urging not only previous determinations with violence, but also in urging to excess inequalities otherwise innocent. All violent exercise, therefore, and especially all violent efforts, which, not only by a larger and longer inspiration, but also by the simultaneous action of many muscles interrupting the free motion of the blood, impel it with unusual force into the ex-

treme vessels more generally, and, according to the different postures of the body, and mode of the effort, into certain vessels more particularly.

Among the causes increasing the force of the circulation, anger, and other violent active passions are to be reckoned.

4. The violent exercise of particular parts of the body. If these are already affected with congestions, or liable to them, such exercise may be considered as a stimulus applied to the vessels of that particular part. Thus, any violent exercise of respiration may excite hæmoptysis, or occasion its return.

5. The postures of the body increasing determinations, or ligatures occasioning accumulations of the blood in particular parts of the body.

6. A determination into certain vessels rendered habitual by the frequent repetition of hæmorrhagy from them.

7. Cold externally applied, as changing the distribution of the blood, and determining it in greater quantity into the internal parts.

SECT. IV.—OF THE CURE OF HÆMORRHAGY.

DCCLXXVI. Having thus considered the proximate and remote causes of hæmorrhagy in general, our next business is, to treat of the cure of the disease in the same manner.

In entering upon this subject, the first question which presents itself, is, Whether the cure of hæmorrhagies ought to be attempted by art, or if they should be left to the conduct of nature?

DCCLXXVII. The latter opinion was the favourite doctrine of the celebrated Dr. Stahl, and his followers.—" I must own that the particular doctrines of the Stahlians are in many respects ill-founded: but they have been useful, and they have collected the chief facts which relate to this subject; it is necessary to obviate those doctrines in their writings, which I consider as in a great measure erroneous." They maintained, that the human body is much disposed to a plethoric state; and, consequently, to many disorders which nature endeavours to obviate and relieve by exciting hæmorrhagy: that this, therefore, is often necessary to the balance and health of the system:

that it is accordingly to be generally encouraged, sometimes solicited, and is not to be suppressed, unless when it goes to great excess, or happens in parts in which it may be dangerous.

DCCLXXVIII. Much of this doctrine may be admitted. The human body, upon many occasions, becomes preternaturally plethoric; and the dangerous consequences which might from thence be apprehended, seem to be obviated by an hæmorrhagy taking place; and further, the necessity of hæmorrhagy often appears from hence, that the suppression of it seems to occasion many disorders.

All this seems to be just; but, in the conclusion drawn from it, there is a fallacy.

DCCLXXIX. It appears to me certain, that hæmorrhagy, either upon its first attack, or upon its after recurrence, is never necessary to the health of the body, excepting upon the supposition, that the plethoric state which seems to require the evacuation, cannot be otherwise prevented or removed; and as I imagine it possible by other means to prevent or remove a plethoric state, so I do not think that hæmorrhagy is, in all cases, necessary. In general, I am of opinion, that hæmorrhagy is to be avoided.

1. Because it does not always happen in parts where it is safe.

2. Because often, while it does relieve a plethoric state, it may, at the same time, induce a very dangerous disease.

3. Because it may often go to excess, and either endanger life, or induce a dangerous infirmity.

And, lastly, Because it has a tendency to increase the plethoric state it was meant to relieve; to occasion its own recurrence (DCCXXI.); and thereby to induce a habit, which, if left to the precarious and unequal operation of nature, may, from the frequent errors of this, be attended with much danger.

DCCLXXX. It is further to be considered, that hæmorrhagies do not always arise from necessities of the system, but often proceed from incidental causes. It appears to me, that all hæmorrhagies of the latter kind may be immediately suppressed, and the repetition of them, as it induces a plethora, and a habit not otherwise necessary, may be prevented with great advantage.

“ The Stahlians have gone to excess in rendering that a universal rule which is in fact only limited. The necessity of hæmorrhagies does not always arise from the original constitution of the system, nor even from long habits established by nature; but upon the contrary there is a variety of exciting causes which may arise accidentally, and give occasion to hæmorrhagy. Certainly the obviating these occasional causes, and the plethoric state in so far as it arises from them, is not only allowable but necessary."

DCCLXXXI. Upon the whole of this subject, I conclude, that every preternatural hæmorrhagy, or in other words, every one except that of the menses in females, is to be avoided, and especially the returns of it prevented; and I therefore now proceed to mention, how hæmorrhagy, and its recurrences, may, and should be prevented.

DCCLXXXII. From the principles delivered above, it will immediately appear, that the prevention, either of the first attacks, or of the returns of hæmorrhagy, will chiefly, and in the first place, depend upon the preventing or removing any considerable degree of a plethoric state which may happen to prevail in the body. It is true, that, where the hæmorrhagy depends upon the particular conformation of certain parts, rather than upon the general plethoric state of the whole, the measures for removing or preventing the latter may not always be sufficient for preventing hæmorrhagy: but at the same time it must be evident, that determinations, in consequence of the conformation of particular parts, will always be urged more or less, in proportion to the greater or less degree of the plethoric state of the whole system; and, therefore, that, even in the cases depending upon particular conformation, the preventing or removing an unusally plethoric state, will always be a chief means of preventing hæmorrhagy. It is further to be attended to, that there may be several inequalities in the balance of the system, which may have little or no effect unless when the system becomes preternaturally plethoric; and, therefore, that, in all cases, the preventing or removing of the plethoric state of the system, will be a chief means of preventing the first attacks, or the returns of hæmorrhagy. It now, therefore, remains to explain, how the plethoric state of the system is to be prevented or removed.

DCCLXXXIII. The fluids of the human body are in continual waste by the excretions, but are commonly replaced by the aliments taken in; and if the quantity of aliments in any measure exceeds that of the excretions, an increase of the quantity of the fluids of the body, or, in other words, a plethoric state, must necessarily arise. This, to a certain degree, is requisite for the growth of the body; but, even then, if the proportion of the aliments to the excretions, be greater than is suited to the growth of the body, and more certainly still, if, after the growth is completed, when an equality between the *ingesta* and the *excreta* should be established, the disproportion still continue, a preternaturally plethoric state must arise. In both cases, it is evident, that the plethora must be prevented or corrected by adjusting the ingesta and excreta to each other; which generally may be done, either by diminishing the ingesta, or by increasing the excreta. The former may be effected by the management of diet, the latter by the management of exercise.

DCCLXXXIV. The ingesta may be diminished, either by giving aliment in less quantity than usual, or by giving aliments of a less nutritious quality; that is, aliments of a substance, which, under the same bulk and weight, contain less of a matter capable of being converted into animal fluids, and more of a matter ready to pass off by the excretions, and consequently less of a matter to be retained and accumulated in the vessels.

The choice of aliments suited to these purposes, must be left to be directed by the doctrines of the Materia Medica.

DCCLXXXV. The increasing of the excreta, and thereby diminishing the plethoric state of the system, is to be obtained by increasing the exercise of the body; and generally for adjusting the balance between the ingesta and excreta, and thereby obviating the plethoric state, it is necessary that exercise, in a due measure, be very constantly employed.

DCCLXXXVI. The observing abstinence, and the employment of exercise, for obviating or removing the plethoric state of the body, were formerly considered pretty fully, when treating of the gout (DXLVIII. to DLII.), so that the less is necessary to be said here; and it is now only requisite to observe, that the same doubts, as in cases of the gout, do not occur here with regard to the safety of those measures, which, in a plethoric state of the body disposing to hæmorrhagy, are always admissible and proper. Here, however, it is to be observed, that some choice in the mode of exercise is necessary, and that it should be different according to the particular determinations which may happen to prevail in the system. In general, in the case of plethora disposing to hæmorrhagy, bodily exercise will always be hazardous, and gestation more commonly safe.

"Upon the whole, it is obvious, that exercise promotes the excretions in general, but most especially the external secretions, the perspiration. Now, I would maintain, that even the balance which is kept up by the ordinary secretions, to prevent plethora in general, is, during the course of the cold season, more liable to admit of an internal determination, and so to occasion a plethoric state; and the support of perspiration, which is the especial effect of exercise, is the most active means of preventing the accumulation of blood in these parts.

"Every motion of the body, whether by its own force or by other powers, does effect this; but it is what we properly call bodily exercise, that motion which is executed by the body's own internal power, which has the peculiar effect. Let no indolent luxurious man therefore think that he will obtain the purpose of obviating plethora by rolling in his chariot. He must take to somewhat more active, such as riding; but to procure health he must especially have recourse to bodily labour; because it is a rule, that whatever bodily exercise be employed, it must not be violent, and by fits only: this does not answer the purpose. In proportion as the secretions are forced, they again subside; so that afterwards the perspiration is diminished as much below its natural standard as it was increased beyond it before; and we cannot therefore recommend the exercise, which folly and amusement induce, which is violent for the time, and not lasting, and allows the perspiration to subside. The exercise which is useful must be moderate, but pretty constant, at least more or less steady, according to the necessity or habit of the system. To one man three hours of moderate exercise may be sufficient, whilst another may require six or ten.

"A curious difficulty occurs with regard to exercise, when the congestions which occur, and the hæmorrhagy, do not depend upon a general, but, as I have said they often do, upon a topical plethora, in consequence of a particular constitution. It is alleged, that in such cases exercise may be hurtful. I have just now said, that every increase of motion does affect a particular determination. If now the congestion has taken place, and is in danger by the smallest excess of being brought to its last effect, a hæmorrhagy, then I own that bodily exercise is a dangerous measure; but if we can come before that period, before the determination and accumulation is considerable, then these may be obviated by the exercise. This depends upon the remarkable principle, that the increased action of the heart and arteries does not exert its influence equally upon all parts of the system, but is determined more especially to the surface of the body. And although exercise may sometimes increase particular internal determinations, and, for instance, bring on hæmoptysis in a man who is liable to it, and raise it to its utmost height; yet, even in the case of the lungs, its effects are quite different, if it is used before the determination is fully fixed."

DCCLXXXVII. Artificial evacuations may be employed to diminish the plethoric state of the body; and when, at any time, it has become considerable, and immediately threatens a disease, these evacuations should be made to the quantity that the symptoms seem to require. But it is constantly to be attended to, that blood-lettings are improperly employed to prevent a plethora, as they have a tendency to increase it (DCCXXI.); and as they require to be often repeated, and are thereby apt to induce a habit which may be attended with much danger.

"Yet, when a plethoric congestion can be manifestly observed to be already formed, and threatening hæmorrhagy,' venesection is certainly absolutely necessary; and, upon several occasions, even its repetitions may be. And it is possible, that it may be practised with impunity and with advantage, if other means are employed to concur with it in obviating plethora. The management which I should propose, and which I have found on many occasions useful, is this: when there was a manifest plethoric state, and I had found occasion for bleeding, I watched over the first symptoms of the renewed plethoric state, and upon that repeated the venesection; but a lesser quantity was now taken than before; and in the same manner, and with the same attention, the bleeding may be repeated in a less quantity, thus making the return of the plethoric state less remarkable; and, at length, so far as it depends upon that, rendering it none at all.

"So in young and vigorous persons, who, with a suspicion of a hereditary taint or diathesis, or after some preceding accidental symptoms of plethora and actual hæmorrhagy, such as frequent bleeding from the nose about the time of puberty, are now at a period of life when they may apprehend a much more dangerous hæmorrhagy, that from the lungs—in such persons, I think, it has been very properly proposed to employ venesection; and to avoid the consequences, which I mentioned, it may be practised at longer and longer intervals, and in smaller quantity; and, joined with other measures, it may prove an effectual means of obviating the congestion."

DCCLXXXVIII. While a plethora, and thereby the predisposition to hæmorrhagy, is avoided, or removed, the other measures necessary for preventing the occurrence of this, are those for avoiding the remote causes. These have been enumerated in DCCLXXV.; and the means of avoiding them, so far as within our power, are sufficiently obvious.

DCCLXXXIX. Having thus mentioned the means of preventing either the first attacks, or the recurrence of hæmorrhagy, I must next say how it is to be managed when it has actually come on.

DCCXC. When an hæmorrhagy has come on, which appears to have arisen from a preternaturally plethoric state, or from some change in the balance of the sanguiferous system, no measures are to be immediately taken for suppressing it; as we may expect, that, when the quantity of blood necessary for the relief of the system is poured out, the effusion will spontaneously cease.

"Here again we meet with a general question arising from the doctrine of the Stahlians: as they suppose hæmorrhagy necessary, so they suppose that it is wisely instituted by nature for the relief of the system, and that the conduct of the business may be left to nature. They produce many arguments to shew the necessity of it, and many facts showing the dangerous consequences of stopping it; they say that we need not be anxious about the quantity which happens to flow, that we find it indeed sometimes excessive, but that the system readily recovers itself; and they probably suppose the administration of a reasonable soul, by which the quantity will be adapted to the necessity of the system, and therefore may be left to itself. The consequence of this observation is easily enough obviated: we know indeed that the sudden suppression of hæmorrhagy may be in many cases dangerous, and the use of direct astringents is improper; but this certainly does not at all affect the proposal of remedies, which do not stop the hæmorrhagy, but in a great measure supersede its being excessive.

"The second part of their argument arises from the intelligence and wisdom of nature, and our trusting to that. I will not attack their general proposition: we see the wisdom of the animal economy in guarding against its own deviations; but with regard to the subject in question, there is no doubt that hæmorrhagy often goes to hurtful excess, even when excited by the powers of the system. We have many proofs of its being absolutely mortal, and we know innumerable instances where it at least produced disease: and the repetition of hæmorrhagy has the effect of constantly favouring the return of the symptoms."

DCCXCI. In many cases, however, it may be suspected, that the quantity of blood poured out, is not exactly in proportion to the necessities of the system, either for relieving a general plethora or a particular congestion, but that it is often to a greater quantity than these require. This we suppose to happen in consequence of an inflammatory diathesis prevailing, and of a febrile spasm being formed; and therefore it is in many cases proper, as well as for the most part safe, to moderate the evacuation, and, when it threatens to go to excess, to suppress it altogether.

DCCXCII. An hæmorrhagy may be moderated by avoiding any irritation that might concur to increase it; so that every part of the antiphlogistic regimen is to be observed; in particular external heat, both as it rarefies the fluids, and stimulates the solids, is to be carefully avoided: and, it is probable, that in all cases an hæmorrhagy may be safely moderated by cool air applied, and cold drink exhibited.

" An equally necessary part of the antiphlogistic regimen, is, the avoiding of all motion; the motion of the body any how, even by other powers, but especially bodily motion. I would add another particular that has been less attended to, and which prevents irritation, viz. a proper posture of the body, such as is least favourable to the congestion that takes place: thus, an erect posture in bleeding of the nose, and a contrary situation in cases of uterine hæmorrhagy."

DCCXCIII. A second means for the same purpose, is, the use of refrigerant medicines, and particularly of acids and nitre.

DCCXCIV. A third means which has been frequently employed, is that of blood-letting. The propriety of this practice may be doubtful, as the quantity of blood poured out by the hæmorrhagy, may be supposed to answer the purpose of an evacuation in any other way; and I am ready to allow, that the practice has been often superfluous, and sometimes hurtful, by making a greater evacuation than was necessary or safe. At the same time, I apprehend it is not for the mere purpose of evacuating that blood-letting is to be practised in the cure of hæmorrhagy, but that it is further necessary for taking off the inflammatory diathesis which prevails, and the febrile spasm that has been formed. Accordingly, in the case of hæmorrhagy, when the pulse is not only frequent, but quick and full, and does not become softer or slower upon the flowing of the blood, and that the effusion is profuse, and threatens to continue so, it appears to me, that blood-letting may be necessary, and I have often found it useful. It seems probable also, that the particular circumstances of venesection may render it more powerful for taking off the tension and inflammatory irritation of the system, than any gradual flow from an artery.—" Dr. Heberden is the only person who has called in question the propriety of this practice (*Med. Commentaries*, Appendix p. 512.). It has certainly sometimes contributed to produce anasarca, but in many cases it is absolutely proper and necessary: and I have seen an hæmorrhagy stop, while the blood was drawing from the arm. The venesection is rendered more powerful by the large orifice made, and the untying of the ligature, by which syncope is often induced."

DCCXCV. That a spasm of the extreme vessels has a share in supporting hæmorrhagy, appears to me probable from hence, that blistering has been often found useful in moderating and suppressing the disease.

DCCXCVI. Do emetics and vomiting contribute to the cure of hæmorrhagy ?—See Dr. Bryan Robinson on the virtues and powers of medicines.—" He imagines, that during the sick fit which always ushers in vomiting, they produce a powerful constriction upon the whole arterial vessels; for, from the condition of the pulse at that time, we know that the action of the heart is considerably weakened. But when the full vomiting comes on, that effect immediately ceases, and the action of the heart and arteries is manifestly increased. The use of emetics therefore, as a sort of astringents, is to me attended with much difficulty : but if practitioners are in favour of them from actual observation, as I think I have observed, I would explain it in another manner; viz. by their power in taking off the febrile spasm in general, and of restoring the action of the extreme vessels, by determining to the surface, and taking off the internal determination upon which the hæmorrhagy depends."

DCCXCVII. When an hæmorrhagy is very profuse, and seems to endanger life, or even threatens to induce a dangerous infirmity, it is agreed on all hands, that it is to be immediately suppressed by every means in our power; and particularly, that besides the means above-mentioned for moderating the disease, astringents, internal or external, where the latter can be applied, are to be employed for suppressing it.

" The Stahlians have said much with regard to certain consequences of the employment of these remedies; and in as far as they can produce a sudden cessation of the hæmorrhagy before the previous plethoric state is taken off, and as they suddenly stop a determination, which, from a balance of the system, had for a long time existed, they may suddenly determine the blood to other parts of the system with danger. But I believe the hazard is not often incurred, because I doubt much if any internal astringents can be employed, that are of considerable or sudden power."

DCCXCVIII. The internal astringents are either vegetable or fossil.

The vegetable astringents are seldom very powerful in the cure of any hæmorrhagies, except those of the alimentary canal. —" We find, indeed, that they have some effects upon the primæ viæ; but although they may be of great power there, there is little evidence of astringency from vegetables being from thence communicated to the rest of the system.—Upon the subject of vegetable astringents I must take notice of one which is probably at present more trusted to than most others, that is the Peruvian bark. I would by no means say that it is not at all astringent, but it is so very moderately; and what the Stahlians have attributed to it, is not from experience; and we will say that in the case of hæmorrhagy, its effects in stopping it are very precarious.

" We have alleged that tonics, such as Peruvian bark, are capable of inducing, and certainly do increase the phlogistic diathesis: and in that case, I say that their action in active hæmorrhagy may be rather hurtful. But thereis one case of hæmorrhagy for which the bark is proper. It is a fact, which frequently occurs, that a hæmorrhagy returns at certain periods: I have known an instance of hæmorrhagy returning regularly in the evening, and continuing for some time, but ceasing before morning, and disappearing through the day, till the evening accession came on again. Whenever it can be perceived that the pyrexia attending hæmorrhagy has thus a periodical movement, and admits of considerable remission, I believe that the Peruvian bark is the only effectual remedy, and with this view I have known it employed with advantage."

The fossil astringents are more powerful; but some choice amongst the different kinds may be proper.

The chalybeates, so frequently employed, do not appear to me to be very powerful.

" Iron is a medicine of tonic power, I think with no very considerable degree of astringency, and therefore it is liable to all the ambiguity of the bark. Though several medicines for internal and external use have been prepared from iron, I must say that in internal use I never saw them have any sensible effect; and I doubt also of their external use. But in cases of general flaccidity, as it is frequently marked under the title of *cachexy*; and in all cases of evacuations from laxity, whether sanguine or serous, they are likely to be the most effectual remedies. In all cases of active hæmorrhagy they must be hurtful; and in cases of hæmorrhagy from external violence, I would judge them to be useless, if not hurtful."

The preparations of lead are certainly more so, but are otherwise of so pernicious a quality, that they should not be employed except in cases of the utmost danger. The Tinctura Saturnina, or Antiphthisica, as it has been called, appears to be of little efficacy; but whether from the small portion of lead which it contains, or from the state in which the lead is in it, I am uncertain.

The fossil astringent that appears to me the most powerful, and at the same time the most safe, is alum.—"It is not only an astringent, but it is a very powerful sedative, without at the same time possessing any of the poisonous property of the preparations of lead: it is therefore, I imagine, of all the astringents, the one on which we may chiefly depend."

DCCXCIX. External astringents, when they can be applied, are more effectual than the internal. The choice of these is left to the surgeons.

DCCC. The most powerful of all astringents appears to me to be cold, which may be employed, either by applying cold water to the surface of the body, or by throwing it into the internal parts.

"Some late writers say, that hæmorrhagy may be effectually cured by throwing in cold water: I readily admit that it is powerful: but I think that, in affections of those parts of the system to which the cold can in any measure be applied, its external application is of much more importance. The power of cold is a matter of some nicety, and it is difficult to separate its stimulant and its sedative effects. It is capable of proving a stimulant by its transient application, or as connected with certain circumstances of the body; but the continued application of cold weakens the moving powers of the circulatory system, and, supposing it to be suddenly astringent, and in hazard of suppressing the hæmorrhagy sooner than the Stahlians would allow, yet in as far as it diminishes the whole of the moving powers of the system, it is less liable to produce those hazardous determinations which might otherwise arise. I say, therefore, that as a means of suddenly suppressing hæmorrhagy, it is one of the most powerful, and at the same time the safest astringent, or rather sedative."

DCCCI. For suppressing hæmorrhagies, many superstitious remedies and charms have been recommended, and pretended to have been employed with success. The seeming success of these, however, has been generally owing to the by-standers mistaking a spontaneous ceasing of the hæmorrhagy for the effect of the remedy. At the same time, I believe, that those remedies may have been sometimes useful, by impressing the mind with horror, awe, or dread.

DCCCII. Upon occasion of profuse hæmorrhagies, opiates have been employed with advantage; and, when the fulness and inflammatory diathesis of the system have been previously taken off by the hæmorrhagy itself, or by blood-letting, I think opiates may be employed with safety.

"From the manifest power of opium in restraining evacuations, an analogy has transferred the use of it to hæmorrhagy; and both materia medica and practical writers have commended its use in such cases; but we are persuaded, that there is much fallacy in the testimonies that have been given of its good effects. We are well persuaded that every active hæmorrhagy is accompanied with a phlogistic diathesis of the system; in such cases opium is hurtful; and I have had several occasions in active hæmorrhagies to observe its being so. If opium, therefore, is ever admissible or useful in such cases, it must be in those in which the hæmorrhagy is occasioned and supported by a particular irritation. Thus, in a hæmoptysis, where the blood comes up without coughing, or when the cough attending it only arises in consequence of blood being poured out into the bronchia, as in cases of hæmoptysis from external violence, opium is of no service, and often does harm. But there are cases, in which the hæmoptysis is occasioned by coughing, and appears only in consequence of the returns of coughing; in which cases, opium may, and has been of service.—*M. M.*

DCCCIII. For restraining hæmorrhagy, ligatures have been applied upon the limbs, in the view of retarding the return of the venous blood from the extremities; but they appear to me to be of uncertain and ambiguous use.

DCCCIV. In the case of profuse hæmorrhagies, no pains are to be taken to prevent a Deliquium animi, or fainting, as the happening of this is often the most certain means of stopping the hæmorrhagy.

DCCCV. Having thus delivered the general doctrine of hæmorrhagy, I proceed to consider the particular cases of it. It may perhaps be remarked, that I have marked fewer of these than are commonly enumerated by the nosologists; but my reasons for differing from these authors must be left to a nosological discussion, to be entered into elsewhere more properly than here.

"My reason is partly that I have avoided one or two very rare cases, and the character and circumstances of which I had not well ascertained; but chiefly that I have comprehended only those hæmorrhagies which I think idiopathic, and almost constantly omitted those which I consider as symptomatic affections.—(See *Synops. Nosol.*, p. 286.")

CHAP. II.—OF THE EPISTAXIS, OR HÆMORRHAGY OF THE NOSE.

DCCCVI. The state of the vessels upon the internal surface of the nose, being such as already mentioned (DCCLVII.), renders an hæmorrhagy from that more frequent than from any other part of the body.

DCCCVII. The blood commonly flows from one nostril only, and probably because an hæmorrhagy from one vessel relieves the congestion in all the neighbouring vessels.

The blood flowing from both nostrils at the same time, shows commonly a more considerable disease.

DCCCVIII. This hæmorrhagy happens to persons of every constitution and temperament, but most frequently to those of a plethoric habit, and sanguine temperament. It happens to both sexes, but most frequently to the male.

DCCCIX. This hæmorrhagy may occur at any time of life; but most commonly happens to young persons, owing to the state of the balance of the system peculiar to that age, as mentioned in DCCLVI.

DCCCX. Although generally it happens to persons before they have arrived at their full growth, and more rarely afterwards, yet sometimes it happens to persons after their acmé, and during the state of manhood: and it must then be imputed to an unusually plethoric state of the system; to an habitual determination of the blood to the vessels of the nose; or to the particular weakness of these.

DCCCXI. In all these cases, the disease may be considered as an hæmorrhagy purely arterial, and depending upon an arterial plethora; but it sometimes occurs in the decline of life, when probably it depends upon, and may be considered as a mark of a venous plethora of the vessels of the head. See DCCLXXII.

DCCCXII. This hæmorrhagy happens also at any period of life, in certain febrile diseases, which are altogether or partly of an inflammatory nature, and which show a particular determination of the blood to the vessels of the head. These diseases often admit of a solution by this hæmorrhagy, when it may be properly termed *critical*.

DCCCXIII. The disease sometimes comes on without any previous symptoms; particularly, when some external violence has a share in producing it. But, when it proceeds entirely from an internal cause, it is commonly preceded by headachs, redness of the eyes, a florid colour of the face, an unusual pulsation in the temples, a sense of fulness about the nose, and an itching of the nostrils. A bound belly, pale urine, coldness of the feet, and cold shivering over the whole body, are also sometimes among the symptoms that precede the disease.

DCCCXIV. From the weakness of the vessels of the nose, the blood often flows from them without any considerable effort of the whole system, and therefore without any observable febrile disorder; which, however, in many cases, is, in all its circumstances, very discernible.

DCCCXV. An hæmorrhagy of the nose happening to young persons, is, and may generally be considered as a slight disease of little consequence, and hardly requiring any remedy. But, even in young persons, when it recurs very frequently, and is very copious, it will require particular attention, as it is to be considered as a mark of arterial plethora; and, as frequently returning, it may increase the plethoric state; which, in a more advanced stage of life, may give the blood a determination to parts from which the hæmorrhagy would be more dangerous. All this will more particularly require attention, according as the marks of plethora, and of particular congestion, preceding the hæmorrhagy, are more considerable; and as the flowing of the blood is attended with a more considerable degree of febrile disorder.

DCCCXVI. When the epistaxis happens to persons after their acmé, returning frequently, and flowing copiously, it is always to be considered as a dangerous disease, and as more certainly threatening the consequences mentioned in the last paragraph.

DCCCXVII. When this hæmorrhagy happens in the decline of life, it may be considered as in itself very salutary: but, at the same time, it is to be considered as a mark of a very dangerous state of the system; that is, as a mark of a very strong tendency to a venous plethora in the vessels of the head: and I have accordingly observed it often followed by apoplexy, palsy, or such like diseases.

DCCCXVIII. When an hæmorrhagy from the nose happens in febrile diseases, as mentioned in DCCCXII., and is in pretty large quantity, it may be considered as critical and salutary; but it is very apt to be profuse, and even in this way dangerous.

It upon some occasions occurs during the eruptive fever of several exanthemata, and is in such cases sometimes salutary; but, if these exanthemata be accompanied with any putrid tendency, this hæmorrhagy, like artificial blood-lettings, may have very bad effects.

DCCCXIX. Having thus explained the several circumstances of epistaxis, I proceed to consider the management and cure of it. I use the expression of *management*, because it has been usually thought to require no cure, but that nature should be allowed to throw out blood in this way very frequently; and as often as it appears to arise from internal causes, that is, from a state of the system supposed to require such evacuation.

DCCCXX. I am however of opinion, for the reasons given DCCLXXIX., that this disease is very seldom to be left to the conduct of nature; and that in all cases it should be moderated by keeping the patient in cool air; by giving cold drink; by keeping the body and head erect; by avoiding any blowing of the nose, speaking, or other irritation: and, when the blood has flowed for some time, without showing any tendency to cease, a profuse bleeding is to be prevented by measures employed to stop it; such as pressing the nostril from which the blood flows, washing the face with cold water, or applying this to other parts of the body.

DCCCXXI. Even in the case of young persons, where the disease is least hazardous, and even in the first attacks, I judge such measures to be proper: but they will be still more proper, if the disease frequently recurs without any external violence; if the returns shall happen to persons of a habit disposed to be plethoric; and, more particularly, if the marks of a plethoric state appear in the precedent symptoms. (DCCCXIII.)

DCCCXXII. Even in young persons, if the bleeding be very profuse and long continued, and more especially if the pulse become weak and the face pale, I apprehend it will be proper to suppress the hæmorrhagy by every means in our power. See DCCXCVII. and following paragraphs.

DCCCXXIII. Further, in the same case of young persons, when the returns of this hæmorrhagy become frequent, and especially with the marks of a plethoric habit, I think it necessary to employ such a regimen as may prevent a plethoric state (DCCLXXXIII.—DCCLXXXVII.). At the same time, care should be taken to avoid all circumstances which may determine the blood more fully to the vessels of the head, or prevent its free return from them; and, by keeping an open belly, to make some derivation from them.

DCCCXXIV. In adult persons, liable to frequent returns of the epistaxis, the whole of the measures proposed DCCCXXIII., are more certainly and freely to be employed. When, with the circumstances mentioned in DCCCXIII., the tendency to a profuse hæmorrhagy appears, a bleeding at the arm may be proper, even in young persons; but, in the case of adults, it will be still more allowable, and even necessary.

DCCCXXV. In persons of any age liable to frequent returns of this hæmorrhagy, when the measures proposed in DCCCXVII. *et seq.* shall have been neglected, or, from peculiar circumstances in the balance of the system, shall have proved ineffectual, and the symptoms threatening hæmorrhagy (DCCXXXVIII.) shall appear, it will then be proper, by blood-letting, cooling purgatives, and every part of the antiphlogistic regimen, to prevent the hæmorrhagy, or at least to prevent its being profuse when it does happen.

DCCCXXVI. In the circumstances just now mentioned (DCCCXXV.), the measures proposed are proper, and even necessary; but it should at the same time be observed, that these are practised with much less advantage than those pointed out in DCCCXXIV. because, though those suggested here may prevent the coming on of the hæmorrhagy for the present, they certainly, however, dispose to the return of that plethoric state which required their being used; and there can be no proper security against returns of the disease, but by pursuing the means proposed in DCCCXXIII.

DCCCXXVII. When the hæmorrhagy of the nose happens to persons approaching to their full growth, and when its returns have been preceded by the symptoms DCCCXIII., it may be supposed, that, if the returns can be prevented by the measures proposed in DCCCXXV., these may be safely employed; as the plethoric state induced will be rendered safe, by the change which is soon to take place in the balance of the system. This, however, cannot be admitted; as the evacuations practised upon this plan will have all the consequences which, I have already observed, may follow the recurrence of the hæmorrhagy itself.

DCCCXXVIII. When the hæmorrhagy of the nose shall be found to make its returns at nearly stated periods, the measures for preventing it (DCCCXXV.) may be practised with greater certainty; and, upon every repetition of blood-letting, by diminishing the quantity taken away, its tendency to induce a plethora may be in some measure avoided. When, indeed, the repetition of evacuations is truly unavoidable, the diminishing them upon every repetition is properly practised: but it is a practice of nice and precarious management, and should by no means be trusted to, so far as to supersede the measures proposed in DCCCXXV., wherever these can be admitted.

DCCCXXIX. When the hæmorrhagy of the nose happens in consequence of a venous plethora in the vessels of the head, as in DCCLXXII., the flowing of the blood pretty largely may be allowed, especially when it happens after the suppression or ceasing of the menstrual or hæmorrhoidal flux. But, though the flowing of the blood is, on its first occuring, to be allowed, there is nothing more proper than guarding against its returns. This is to be done, not only by the measures proposed in DCCLXXXIII. *et seq.*, but, as the effects of a plethoric state of the vessels of the head are very uncertain, so, upon any appearance of it, and especially upon any threatening of hæmorrhagy, the plethora is to be removed, and the hæmorrhagy to be obviated immediately by proper evacuations; as bloodletting, purging, and issues, or by restoring suppressed evacuations, where this can be done.

CHAP. III.—OF THE HÆMOPTYSIS, OR HÆMORRHAGY FROM THE LUNGS.

SECT. I.—OF THE PHENOMENA AND CAUSES OF HÆMOPTYSIS.

DCCCXXX. When, after some affection of the breast, blood is thrown out from the mouth, and is brought out with more or less coughing, there can be no doubt that it comes from the lungs; and this generally ascertains the disease of which I am now to treat. But there are cases in which the source of the blood spit out is uncertain; and, therefore, some other considerations, to be mentioned hereafter, are often necessary to ascertain the existence of an hæmoptysis.

DCCCXXXI. The blood-vessels of the lungs are more numerous than those of any other part of the body of the same bulk. These vessels, of the largest size, as they arise from the heart, are more immediately than in any other part subdivided into vessels of the smallest size; and these small vessels, spread out near to the internal surfaces of the bronchial cavities, are situated in a loose cellular texture, and covered by a tender membrane only; so that, considering how readily and frequently these vessels are gorged with blood, we may understand why an hæmorrhagy from them is, next to that of the nose, the most frequent of any; and particularly, why any violent shock given to the whole body, so readily occasions an hæmoptysis.

DCCCXXXII. An hæmoptysis may be occasioned by external violence at any period of life; and I have explained above (DCCLX.), why, in adult persons, while the arterial plethora still prevails in the system, that is, from the age of sixteen to that of five-and-thirty, an hæmoptysis may at any time be produced, merely by a plethoric state of the lungs.

DCCCXXXIII. But it has been also observed above (DCCLXI.), that an hæmoptysis more frequently arises from a faulty proportion between the capacity of the vessels of the lungs and that of those of the rest of the body. Accordingly, it is often a hereditary disease, which implies a peculiar and faulty conformation. And the disease also happens especially to persons who discover the smaller capacity of their lungs, by the narrowness of their chest, and by the prominency of their shoulders; which last is a mark of their having been long liable to a difficult respiration.

DCCCXXXIV. With these circumstances also the disease happens especially to persons of a sanguine temperament; in whom, particularly, the arterial plethora prevails. It happens likewise to persons of a slender delicate make, of which a long neck is a mark; to persons of much sensibility and irritability, and therefore of quick parts, whose bodies are generally of a delicate structure; to persons who have been formerly liable to frequent hæmorrhagies of the nose; to persons who have suffered a suppression of any hæmorrhagy they had formerly been liable to, the most frequent instance of which is in females who have suffered a suppression of their menstrual flux; and, lastly, to persons who have suffered the amputation of any considerable limb.

DCCCXXXV. In most of these cases (DCCCXXXIV.) the disease happens especially to persons about the time of their coming to their full growth, or soon after it; and this for the reasons fully set forth above.

DCCCXXXVI. From all that has been said from DCCCXXXI. to DCCCXXXV., the predisponent cause of hæmoptysis will be sufficiently understood, and the disease may happen from the mere circumstance of the predisponent cause arising to a considerable degree. In the predisposed, however, it is often brought on by the concurrence of various occasional and exciting causes. One of these, and perhaps a frequent one, is external heat; which, even when in no great degree, will bring on the disease in spring, and the beginning of summer, while the heat rarefies the blood more than it relaxes the solids, which had been before contracted by the cold of winter. Another exciting cause is a sudden diminution of the weight of the atmosphere, especially when concurring with any effort in bodily exercise. This effort too, alone, may often, in the predisposed, be the exciting cause; and, more particularly, any violent exercise of respiration. In short, in the predisposed, any degree of external violence also may bring on the disease.

DCCCXXXVII. Occasioned by one or other of these causes (DCCCXXXVI.), the disease comes on with a sense of weight and anxiety in the chest, some uneasiness in breathing, some pain of the breast or other parts of the thorax, and some sense of heat under the sternum; and very often, before the disease appears, a saltish taste is perceived in the mouth.

DCCCXXXVIII. Immediately before the appearance of blood, a degree of irritation is felt at the top of the larynx. To relieve this, a hawking is made, which brings up a little blood, of a florid colour, and somewhat frothy. The irritation returns; and, in the same manner, more blood of a like kind is brought up, with some noise in the windpipe, as of air passing through a fluid.

DCCCXXXIX. This is commonly the manner in which the hæmoptysis begins; but sometimes at the very first the blood comes up by coughing, or at least somewhat of coughing accompanies the hawking just now mentioned.

DCCCXL. The blood issuing is sometimes at first in very small quantity, and soon disappears altogether; but, in other cases, especially when it repeatedly occurs, it is in greater quantity, and frequently continues to appear at times for several days together. It is sometimes profuse; but rarely in such quantity as, either by its excess, or by its sudden suffocation, to prove immediately mortal. It commonly either ceases spontaneously, or is stopped by the remedies employed.

DCCCXLI. When blood is thrown out from the mouth, it is not always easy to determine from what internal part it proceeds; whether from the internal surface of the mouth itself, from the fauces, or adjoining cavities of the nose, from the stomach, or from the lungs. It is, however, very necessary to distinguish the different cases; and, in most instances, it may be done by attending to the following considerations.

DCCCXLII. When the blood spit out, proceeds from some part of the internal surface of the mouth itself, it comes out without any hawking or coughing: and generally, upon inspection, the particular source of it becomes evident.

DCCCXLIII. When blood proceeds from the fauces, or adjoining cavities of the nose, it may be brought out by hawking, and sometimes by coughing, in the manner we have described in DCCCXXXVII. and DCCCXXXIX.; so that, in this way, a doubt may arise concerning its real source. A patient often lays hold of these circumstances to please himself with the opinion of its coming from the fauces, and he may be allowed to do so: but a physician cannot readily be deceived, if he consider, that a bleeding from the fauces is more rare than one from the lungs; that the former seldom happens but to persons who have been before liable either to an hæmorrhagy of the nose, or to some evident cause of erosion; and, in most cases, by looking into the fauces, the distillation of the blood, if it comes from thence, will be perceived.

DCCCXLIV. When blood proceeds from the lungs, the manner in which it is brought up will commonly show from whence it comes: but, independent of that, there are many circumstances which may concur to point it out, such as the period of life, the habit of body, and other marks of a predisposition (DCCCXXXIII.—DCCCXXXV.); and, together with these, the occasional causes (DCCCXXXVI.) having been immediately before applied.

DCCCXLV. When vomiting accompanies the throwing out of blood from the mouth, as vomiting and coughing often mutually excite each other; so they may be frequently joined, and render it doubtful whether the blood thrown out proceeds from the lungs or from the stomach. We may, however, generally decide, by considering, that blood does not so frequently proceed from the stomach as from the lungs; that blood proceeding from the stomach commonly appears in greater quantity than when it proceeds from the lungs; that the blood proceeding from the lungs is usually of a florid colour, and mixed with a little frothy mucus only; whereas the blood from the stomach is commonly of a darker colour, more grumous, and mixed with the other contents of the stomach; that the coughing or vomiting, according as the one or the other first arises, in the cases in which they are afterwards joined, may sometimes point out the source of the blood; and, lastly, that much may be learned from the circumstances and symptoms which have preceded the hæmorrhagy.

Those which precede the hæmoptysis enumerated in DCCCXXXVII. are most of them evident marks of an affection of the lungs. And, on the other hand, the hæmatemesis, or issuing of blood from the stomach, has also its peculiar symptoms and circumstances preceding it; as, for instance, some morbid affection of this organ, or at least some pain, anxiety, and sense of weight, referred distinctly to the region of the stomach. To all this may be added, that the vomiting of blood happens more frequently to females than to males; and to the former, in consequence of a suppression of their menstrual flux: and by attending to all these considerations (DCCCXLII.—DCCCXLV.), the presence of the hæmoptysis may commonly be sufficiently ascertained.

SECT. II.—OF THE CURE OF HÆMOPTYSIS.

DCCCXLVI. This disease is sometimes attended with little danger; as, when it happens to females in consequence of a suppression of the menses; when, without any marks of a predisposition, it arises from external violence; or when, from whatever cause arising, it leaves behind it no cough, dyspnœa, or other affection of the lungs. Even in such cases, however a danger may arise from too large a wound being made in the vessels of the lungs; from a quantity of red blood being left to stagnate in the cavity of the bronchiæ; and particularly, from any determination of the blood being made into the vessels of the lungs, which, by renewing the hæmorrhagy, may have dangerous consequences. In every instance therefore of hæmoptysis, the effusion is to be moderated by the several means mentioned (DCCXCII. to DCCXCV.).

DCCCXLVII. These measures are especially necessary when the hæmoptysis arises in consequence of predisposition; and in all cases where there is the appearance of a large effusion, or where the hæmorrhagy frequently returns, the effusion is not only to be moderated, but to be entirely stopped, and the returns of it prevented by every means in our power. See DCCXCVII. and following.

DCCCXLVIII. To stop an hæmoptysis, or prevent the returns of it, two medicines have been frequently employed; neither of which I can approve of. These are, chalybeates, and the Peruvian bark. As both of them contribute to increase the phlogistic diathesis of the system, they can hardly be safe in any case of active hæmorrhagy, and I have frequently found them hurtful.

DCCCXLIX. As the hæmoptysis which happens in consequence of predisposition, is always attended with a phlogistic diathesis; and as the bad consequences of the disease are especially to be apprehended from the continuance of that diathesis; so this is to be industriously taken off by blood-letting, in greater or smaller quantity, and more or less frequently repeated, according as the symptoms shall direct. At the same time, cooling purgatives are to be employed, and every part of the antiphlogistic regimen is to be strictly enjoined. The refrigerants may also be administered; taking care, however, that the acids, and more especially the nitre, do not excite coughing.

DCCCL. From what was observed in DCCXCV. it will appear, that blistering upon the breast or back may be a remedy of hæmoptysis, when it is present; and that issues in the same places may be useful in preventing the recurrence of it when it has ceased.

DCCCLI. The avoiding of motion is generally a proper part of the antiphlogistic regimen; and, in the hæmoptysis, nothing is more necessary than avoiding bodily exercise: but some kinds of gestation, as sailing, and travelling in an easy carriage on smooth roads, have often proved a remedy.

DCCCLII. Such is the treatment I can propose for the hæmoptysis, considered merely as an hæmorrhagy: but when, in spite of all our precautions, it continues to recur, it is often followed by an ulceration of the lungs, and a phthisis pulmonalis. This, therefore, I must now proceed to consider; but, as it arises also from other causes besides the hæmoptysis, it must be treated of with a more general view.

CHAP. IV.—OF THE PHTHISIS PULMONALIS, OR CONSUMPTION OF THE LUNGS.

SECT. I.—OF THE PHENOMENA AND CAUSES OF THE PHTHISIS PULMONALIS.

DCCCLIII. The Phthisis Pulmonalis I would define to be, An expectoration of pus or purulent matter from the lungs, attended with a hectic fever.

As this is the principal species of phthisis, I shall frequently in this chapter employ the general term of Phthisis, though strictly meaning the Phthisis pulmonalis.

DCCCLIV. I have met with some instances of an expectoration of purulent matter continuing for many years, accompanied with very few symptoms of hectic, and at least without any hectic exquisitely formed: but in none of these instances were the persons so entirely free from symptoms of hectic, as to form any exception to the general definition.

DCCCLV. In every instance of an expectoration of pus, I presume there is an ulceration of the lungs. The late Mr. de Haen is the only author that I know of who has advanced another opinion, and has supposed, that pus may be formed in the blood-vessels, and be from thence poured into the bronchiæ. Admitting his fact, I have attempted an explanation of the appearance of pus without ulceration in CCCXLIX: but, after all, I cannot help suspecting the accuracy of his observations; must entirely reject his explanation of them; must however allow, that we still want facts to support the explanation I have offered; and doubt much if it will apply to any case of phthisis. For these reasons I still conclude, agreeably to the faith of all other dissections, and the opinions of all physicians, that the symptoms mentioned in our definition, depend always upon an ulceration formed in the lungs.

DCCCLVI. It has sometimes happened, that a catarrh was attended with an expectoration of a matter so much resembling pus, that physicians have been often uncertain whether it was mucus or pus, and therefore whether the disease was a catarrh or a phthisis. It is often of consequence to determine these questions; and it appears to me that it may be generally done, with sufficient certainty, from the following considerations, of which each particular is not always singly decisive, but when they are taken together can hardly deceive us.

1. From the colour of the matter; as mucus is naturally transparent, and pus always opaque. When mucus becomes opaque, as it sometimes does, it becomes white, yellow, or greenish; but the last mentioned colour is hardly ever so remarkable in mucus as in pus.

2. From the consistence; as mucus is more viscid and coherent, and pus less so, and may be said to be more friable. When mucus is thrown into water, it is not readily diffused, but remains united in uniform and circular masses: but pus, in the same circumstances, though not readily diffused, does not remain so uniformly united, and by a little agitation, is broken into ragged fragments.

3. From the odour; which is seldom perceived in mucus, but frequently in pus. It has been proposed to try the odour of the matter expectorated, by throwing it upon live coals: but in such a trial both mucus and pus give out a disagreeable smell, and it is not easy to distinguish between them.

4. From the specific gravity compared with water; and, indeed, it is usual for the mucus of the lungs to swim on the surface of the water, and for pus to sink in it. But in this we may sometimes be deceived; as pus which has entangled a

great deal of air may swim, and mucus that is free from air may sink.

5. From the mixture which is discernible in the matter brought up; for if a yellow or greenish matter appears surrounded with a quantity of transparent or less opaque and less coloured matter, the more strongly coloured matter may be generally considered as pus; as it is not easy to understand how one portion of the mucus of the lungs can be very considerably changed, while the rest of it is very little so, or remains in its ordinary state.

"There is no certainty in this mark; it might have been left out; and if other circumstances do not concur, no conclusions can be drawn from it."

6. From the admixture of certain substances with the matter thrown out from the lungs. To this purpose we are informed by the experiments of the late Mr. Charles Darwin: (*a.*) That the vitriolic acid dissolves both mucus and pus, but most readily the former. That if water be added to such a solution of mucus, this is separated, and either swims on the surface, or, divided into flocculi, is suspended in the liquor; whereas, when water is added to a like solution of pus, this falls to the bottom, or by agitation is diffused so as to exhibit an uniformly turbid liquor. (*b.*) That a solution of the caustic fixed alkali, after some time, dissolves mucus, and generally pus; and, if water be added to such solutions, the pus is precipitated, but the mucus is not. From such experiments it is supposed, that pus and mucus may be certainly distinguished from each other.

7. From the expectoration's being attended with a hectic fever. A catarrh, or expectoration of mucus, is often attended with fever; but never, so far as I have observed, with such a fever as I am presently to describe as a hectic. This, in my opinion, is the most certain mark of a purulent state in some part of the body; and if others have thought differently, I am persuaded that it has been owing to this, that, presuming upon the mortal nature of a confirmed or purulent phthisis, they have considered every case in which a recovery happened, as a catarrh only; but, that they may have been mistaken in this, shall be shown hereafter.

DCCCLVII. Having thus considered the first part of the character of the Phthisis pulmonalis as a mark of an ulceration of the lungs; and having just now said, that the other part of the character, that is, the hectic fever, is a mark or indication of the same thing; it is proper now to consider this here, as I had with that view omitted it before (LXXIV.).

DCCCLVIII. A hectic fever has the form of a remittent, which has exacerbations twice every day. The first of these occurs about noon, sometimes a little sooner or later; and a slight remission of it happens about five afternoon. This last is soon succeeded by another exacerbation, gradually increasing till after midnight; but after two o'clock of the morning a remission takes place, which becomes more and more considerable as the morning advances. The exacerbations are frequently attended with some degree of cold shivering; or, at least, the patient is exceedingly sensible to any coolness of the air, seeks external heat, and often complains of a sense of cold, when, to the thermometer, his skin is preternaturally warm. Of these exacerbations, that of the evening is always the most considerable.

DCCCLIX. It has commonly been given as a part of the character of a hectic fever, that an exacerbation of it commonly appears after the taking food; and it is true that dinner, which is taken at noon or after it, does seem to occasion some exacerbation. But this must not make us judge the mid-day exacerbation to be the effect of eating only; for I have often observed it come on an hour before noon, and often some hours before dinner; which, in this country at present, is not taken till some time after noon. It is indeed to be observed, that, in almost every person, the taking food occasions some degree of fever; but I am persuaded this would not appear so considerable in a hectic, were it not that an exacerbation of fever is present from another cause; and, accordingly, the taking food in the morning has hardly any sensible effect.

DCCCLX. I have thus described the general form of hectic fever; but many circumstances attending it are further to be taken notice of.—The fever I have described does not commonly subsist long, till the evening exacerbations become attended with sweatings; which continue to recur, and to prove more and more profuse, through the whole course of the disease.—"In many cases the sweats appear only in the morning at first, and then not till the patient has lain a considerable time awake: but they gradually begin sooner till they appear before midnight."—Almost from the first appearance of the hectic, the urine is high-coloured, and deposites a copious branny red sediment, which hardly ever falls close to the bottom of the vessel.—"The lateritious sediment in agues is easily distinguished from the furfuraceous or branny one in hectic fever."—In the hectic, the appetite for food is generally less impaired than in any other kind of fever.—The thirst is seldom considerable; the mouth is commonly moist; and, as the disease advances, the tongue becomes free from all fur, appears very clean; and, in the advanced stages of the disease, the tongue and fauces appear to be somewhat inflamed, and become more or less covered with aphthæ.—As the disease advances, the red vessels of the adnata of the eye disappear, and the whole of the adnata becomes of a pearly white.—The face is commonly pale; but, during the exacerbations, a florid red, and an almost circumscribed spot, appear on each cheek.—For some time, in the course of a hectic, the belly is bound; but, in the advanced stages of it, a diarrhœa almost always comes on, and continues to recur frequently during the rest of the disease, alternating in some measure with the sweatings mentioned above.—The disease is always attended with a debility, which gradually increases during the course of it.—During the same course an emaciation takes place, and goes to a greater degree than in almost any other case.—The falling off of the hairs, and the adunque form of the nails, are also symptoms of the want of nourishment.—Towards the end of the disease, the feet are often affected with œdematous swellings.—The exacerbations of the fever are seldom attended with any headach, and scarcely ever with delirium.—The senses and judgment commonly remain entire to the very end of the disease; and the mind, for the most part, is confident and full of hope.—Some days before death, a delirium comes on, and commonly continues to the end.

DCCCLXI. The hectic fever now described (DCCCLVIII.—DCCCLX.), as accompanying a purulent state of the lungs, is perhaps the case in which it most frequently appears: but I have never seen it in any case, when there was not evidently, or when I had not ground to suppose there was a permanent purulency or ulceration in some external or internal part. It was for this reason, that in LXXIV. I concluded it to be a symptomatic fever only. Indeed, it appears to me to be always the effect of an acrimony absorbed from abscesses or ulcers, although it is not equally the effect of every sort of acrimony; for the scorbutic and cancerous kinds often subsist long in the body without producing a hectic.—"In a pea issue also, kept up for many years, no hectic occurs: where hectic appears therefore we must suppose some acrimony in the pus."—What is the precise state of the acrimony producing this, I cannot determine; but it seems to be chiefly that of a vitiated purulency.

DCCCLXII. However this may be, it appears, that the hectic's depending in general upon an acrimony, explains its peculiar circumstances. The febrile state seems to be chiefly an exacerbation of that frequency of the pulse which occurs twice every day to persons in health, and may be produced by acrimony alone.—"The frequency of the pulse being very great in an erect, and abated in a horizontal posture, is a certain proof of the frequency depending upon debility."—These exacerbations, indeed, do not happen without the proper circumstances of pyrexia; but the spasm of the extreme vessels in a hectic does not seem to be so considerable as in other fevers; and hence the state of sweat and urine which appears so early and so constantly in hectics. Upon the same supposition of an acrimony corrupting the fluids, and debilitating the moving powers, I think that most of the other symptoms may also be explained.

DCCCLXIII. Having thus considered the characteristical symptoms and chief part of the proximate cause of phthisis pulmonalis, I proceed to observe, that an ulcer of the lungs, and its concomitant circumstance of hectic fever, may arise from different previous affections of the lungs; all of which however may, in my opinion, be referred to five heads; that is, 1. To an hæmoptysis; 2. To a suppuration of the lungs in consequence of pneumonia; 3. To catarrh; 4. To asthma; or, 5. To a tubercle. These several affections, as causes of ulcers, shall now be considered in the order mentioned.

DCCCLXIV. It has been commonly supposed, that an hæmoptysis was naturally, and almost necessarily, followed by an ulcer of the lungs: but I will presume to say, that, in general, this is a mistake; for there have been many instances of hæmoptysis occasioned by external violence, without being followed by any ulcer of the lungs; and there have also been many instances of hæmoptysis from an internal cause without any consequent ulceration. And this too has been the case, not only when the hæmoptysis happened to young persons, and recurred for several times, but when it has often recurred during the course of a long life. It is indeed easy to conceive, that a rupture of the vessels of the lungs, like that of the vessels of the nose, may be often healed, as the surgeons speak, by the first intention. It is probable, therefore, that it is an hæmoptysis in particular circumstances only, which is necessarily followed by an ulcer; but what these circumstances are it is difficult to determine. It is possible, that merely the degree of rupture, or frequently repeated rupture preventing the wound from healing by the first intention, may occasion an ulcer; or it is possible that red blood effused, and not brought up entirely by coughing, may, by stagnating in the bronchiæ, become acrid, and erode the parts. These, however, are but suppositions, not supported by any clear evidence. And, if we consider, that those cases of hæmoptysis which follow the predisposition (DCCCXXXII.—DCCCXXXV.), are those especially which end in phthisis, we shall be led to suspect, that there are some other circumstances which concur here to determine the consequence of hæmoptysis, as I shall hereafter endeavour to show.

DCCCLXV. Any supposition, however, which we can make with respect to the innocence of an hæmoptysis, must not supersede the measures proposed above for its cure; both because we cannot certainly foresee what may be the consequences of such an accident, and because the measures above suggested are safe; for, upon every supposition, it is a diathesis phlogistica that may urge on every bad consequence to be apprehended.

DCCCLXVI. The second cause of an ulceration of the lungs to be considered, is a suppuration formed in consequence of pneumonia.

DCCCLXVII. From the symptoms already mentioned in

DCCCLVIII. DCCCLIX., it may, with reason, be concluded, that an abscess, or, as it is called, a *vomica*, is formed in some part of the pleura, and most frequently in that portion of it investing the lungs. Here purulent matter frequently remains for some time, as if enclosed in a cyst: but commonly it is not long before it comes to be either absorbed, and transferred to some other part of the body; or that it breaks through into the cavity of the lungs, or into that of the thorax. In the latter case, it produces the disease called *empyema*; but it is only when the matter is poured into the cavity of the bronchiæ, that it properly constitutes the phthisis pulmonalis. In the case of empyema, the chief circumstances of a phthisis are indeed also present; but I shall here consider that case only, in which the abscess of the lungs gives occasion to a purulent expectoration.

DCCCLXVIII. An abscess of the lungs, in consequence of pneumonia, is not always followed by a phthisis: for sometimes a hectic fever is not formed; the matter poured into the bronchiæ is a proper and benign pus, which is frequently coughed up very readily, and spit out: and, though this purulent expectoration should continue for some time, yet, if a hectic does not come on, the ulcer soon heals, and every morbid symptom disappears. This has happened so frequently, that we may conclude, that neither the access of the air, nor the constant motion of the lungs, will prevent an ulcer of these parts from healing, if the matter of it be well-conditioned. An abscess of the lungs, therefore, does not necessarily produce the phthisis pulmonalis; and if it be followed by such a disease, it must be in consequence of particular circumstances, which corrupt the purulent matter produced, render it unsuitable to the healing of the ulcer, and at the same time make it afford an acrimony, which, being absorbed, produces a hectic and its consequences.

DCCCLXIX. The corruption of the matter of such abscesses may be owing to several causes; as, 1. That the matter effused during the inflammation, had not been a pure serum fit to be converted into a laudable pus, but had been united with other matters which prevented that, and gave a considerable acrimony to the whole: Or, 2. That the matter effused, and converted into pus, either merely by a long stagnation in a vomica, or by its connexion with an empyema, had been so corrupted, as to become unfit for the purpose of pus in the healing of the ulcer. These seem to be possible causes of the corruption of matter in abscesses, so as to make it the occasion of a phthisis in persons otherwise sound; but it is probable, that a pneumonic abscess does especially produce phthisis when it happens to persons previously disposed to that disease, and therefore only as it concurs with some other causes of it.

DCCCLXX. The third cause supposed to produce phthisis, is a catarrh; which, in many cases, seems, in length of time, to have the expectoration of mucus proper to it, gradually changed into an expectoration of pus; and at the same time, by the addition of a hectic fever, the disease, which was at first a pure catarrh, is converted into a phthisis. This supposition, however, is not easily to be admitted. The catarrh is properly an affection of the mucous glands of the trachea and bronchiæ, analogous to the coryza, and less violent kinds of Cynanche tonsillaris, which very seldom terminate in suppuration. And although a catarrh should be disposed to such termination, yet the ulcer produced might readily heal up, as it does in the case of a Cynanche tonsillaris; and therefore should not produce a phthisis.

DCCCLXXI. Further, the catarrh, as purely the effect of cold, is generally a mild disease, as well as of short duration; and of the numerous instances of it, there are at most but very few cases which can be said to have ended in phthisis. In all those cases in which this seems to have happened, it is to me probable, that the persons affected were peculiarly predisposed to phthisis. And the beginning of phthisis so often resembles a catarrh, that the former may have been mistaken for the latter. Besides, to increase the fallacy, it often happens, that the application of cold, which is the most frequent cause of catarrh, is also frequently the exciting cause of the cough, which proves the beginning of phthisis.

DCCCLXXII. It is to me therefore probable, that a catarrh is very seldom the foundation of phthisis; but I would not positively assert that it never is so; for it is possible, that the cases of a more violent catarrh may have joined with them a pneumonic affection, which may end in a suppuration; or it may happen, that a long continued catarrh, by the violent agitation of the lungs in coughing, will produce some of those tubercles which are presently to be mentioned as the most frequent cause of phthisis.

DCCCLXXIII. It must be particularly observed here, that nothing said in DCCCLXXII. should allow us to neglect any appearance of catarrh, as is too frequently done; for it may be either the beginning of a phthisis, which is mistaken for a genuine catarrh, or that even as a catarrh continuing long, it may produce a phthisis, as in DCCCLXXII.

DCCCLXXIV. Many physicians have supposed an acrimony of the fluids eroding some of the vessels of the lungs, to be a frequent cause of ulceration and phthisis. But this appears to me to be a mere supposition: for in any of the instances of the production of phthisis which I have seen, there was no evidence of any acrimony of the blood capable of eroding the vessels. It is true indeed, that in many cases an acrimony subsisting in some part of the fluids is the cause of the disease, but it is at the same time probable, that this acrimony operates by producing tubercles, rather than by any direct erosion.

DCCCLXXV. It has been mentioned in DCCCLXIII. that an asthma may be considered as one of the causes of phthisis; and by asthmá I mean that species of it which has been commonly named the Spasmodic. This disease frequently subsists very long without producing any other, and may have its own peculiar fatal termination, as shall be explained hereafter. But I have seen it frequently end in phthisis, and in such cases I suppose it to operate in the manner above alleged of catarrh, that is, by producing tubercles, and their consequences, which shall be presently mentioned.

DCCCLXXVI. I come now to consider the fifth head of the causes of phthisis, and which I apprehend to be the most frequent of any. This I have said, in general, to be tubercles; by which term are meant, certain small tumours, which have the appearance of indurated glands. Dissections have frequently shown such tubercles formed in the lungs; and although at first indolent, yet at length they become inflamed, and are thereby changed into little abscesses, or vomicæ, which breaking, and pouring their matter into the bronchiæ, give a purulent expectoration, and thus lay the foundation of phthisis.

DCCCLXXVII. Though the matter expectorated upon these occasions has the appearance of pus, it is seldom that of a laudable kind; and as the ulcers do not readily heal, but are attended with a hectic fever, for the most part ending fatally, I presume that the matter of the ulcers is imbued with a peculiarly noxious acrimony, which prevents their healing, and produces a phthisis in all its circumstances, as mentioned above.

DCCCLXXVIII. It is very probable, that the acrimony which thus discovers itself in the ulcers existed before, and produced the tubercles themselves; and it is to this acrimony that we must trace up the cause of the phthisis following these tubercles. This acrimony is probably, in different cases, of different kinds; and it will not be easy to determine its varieties: but to a certain length I shall attempt it.

DCCCLXXIX. In one case, and that too a very frequent one, of phthisis, it appears that the noxious acrimony is of the same kind with that which prevails in the scrofula. This may be concluded from observing, that a phthisis, at its usual periods, frequently attacks persons born of scrofulous parents, that is, of parents who had been affected with scrofula in their younger years; that very often, when the phthisis appears, there occur at the same time some lymphatic tumours in the external parts; and very often I have found the Tabes mesenterica, which is a scrofulous affection, joined with the Phthisis pulmonalis. To all this I would add, that, even when no scrofulous affection has either manifestly preceded or accompanied a phthisis, this last, however, most commonly affects persons of a habit resembling the scrofulous, that is, persons of a sanguine, or of a sanguineo-melancholic temperament, who have very fine skins, rosy complexions, large veins, soft flesh, and thick upper lip; and further, that in such persons, the phthisis comes on in the same manner that it does in persons having tubercles, as shall be immediately explained.

DCCCLXXX. Another species of acrimony, producing tubercles of the lungs, and thereby phthisis, may be said to be the exanthematic. It is well known, that the smallpox sometimes, and more frequently the measles, lay the foundation of phthisis. It is probable also, that other exanthemata have the same effect; and from the phenomena of the disease, and the dissections of persons who have died of it, it is probable that all the exanthemata may occasion a phthisis, by affording a matter which, in the first place, produces tubercles.

DCCCLXXXI. Another acrimony which seems sometimes to produce phthisis, is the syphilitic; but whether such an acrimony produces phthisis in any other persons than the previously disposed, does not appear to me certain.

DCCCLXXXII. What other species of acrimony, such as from scurvy, from pus absorbed from other parts of the body, from suppressed eruptions, or from other sources, may also produce tubercles and phthisis, I cannot now decide, but must leave to be determined by those who have had experience of such cases.

DCCCLXXXIII. There is one peculiar case of phthisis, which, from my own experience, I can take notice of. This is the case of phthisis from a calcareous matter formed in the lungs, and coughed up, frequently with a little blood, sometimes with mucus only, and sometimes with pus. How this matter is generated, or in what precise part of the lungs it is seated, I acknowledge myself ignorant. In three cases of this kind which have occurred to me, there was at the same time no appearance of stony or earthy concretions in any other part of the body. In one of these cases an exquisitely formed phthisis came on, and proved mortal; while in the other two, the symptoms of phthisis were never fully formed; and after some time, merely by a milk diet, and avoiding irritation, the patients entirely recovered.

DCCCLXXXIV. Another foundation for phthisis, analagous, as I judge, to that of tubercles, is that which occurs to certain artificers, whose employments keep them almost constantly exposed to dust—such as stone-cutters, millers, flax-dressers, and some others. I have not observed in this country many instances of phthisis which could be referred to this cause; but from Ramazzini, Morgagni, and some other writers, we must conclude such cases to be more frequent in the southern parts of Europe.

DCCCLXXXV. Besides those now mentioned, there are probably some other causes producing tubercles, which have not yet been ascertained by observation; and it is likely, that in the state of tubercles, there is a variety not yet accounted for; but all this must be left to future observation and inquiry.

" Why are ulcers occurring in the lungs healed with more difficulty than in other parts of the body? By some the cause is referred to the particular state of the lungs subject to its peculiar motions; by others to the situation of the lungs, exposed to the external air. Both of these answers, however, are by no means satisfactory: as appears from the fact, that there are a number of cases of ulcers of the lungs arising from certain causes, which are readily enough cured.

" I conclude, therefore, very confidently, that the difficulty of cure arises not so much from the peculiarity of the seat or place of the ulcer, as more probably from some ill condition, some cachectic state of the ulcer.

" The first observation which occurs in explanation of this is, that persons of a scrofulous habit are frequently liable to phthisis; that many cases of phthisis depend upon the same cause, a scrofulous habit; and that it is very common in the case of phthisis to find that the lymphatic glands of the neck and other places of the body are affected; and, in short, frequent dissections in the case of phthisis have shewn that the lungs are affected with tubercles, little round or variously formed nodules, putting on the appearance of glands, and which, from many circumstances, have appeared to be lymphatic glands thus tumified. These tubercles of the lungs are very frequently found on dissection; and we meet with many cases where the disease had not been preceded by any spitting of blood. But, at the same time, nothing is more common than to find these same tubercles in cases which seemingly begin with spitting of blood, or in which the spitting of blood began very early; from this it is to be suspected, that the spittings of blood which commonly prove the beginning of phithisis, are frequently from the beginning combined with tubercles; for they occur in the scrofulous habit, and with other symptoms of scrofula present at the same time. Nay I am disposed to push this further—that perhaps hardly any spitting of blood does prove the forerunner of phthisis, unless where the spitting of blood is connected with, and probably produced by tubercles.

" The red vessels of the lungs are very liable to rupture in any case of increased impetus; but the pouring out of blood, either by anastomosis or by rupture, may readily happen whenever the extremities of the blood-vessels of the lungs are anyhow pressed or straitened. And they may be so to a considerable degree by a neighbouring tubercle; and thus, without a preceding determination, or any phlogistic state, the hæmoptysis may occur. I have thus given you an idea how a spitting of blood may be founded on a tubercle; and every body knows it to be the nature of the scrofulous tumour, that it readily changes into an ill-conditioned ulcer. But to explain all that relates to phthisis, I add, that scrofulous tubercles are not the only ones necessary. Indeed, I must own, that in many cases, it can hardly be supposed that the number of tubercles which we find in the whole cellular texture of the lungs can all be tumified glands. We are led to suppose another cause of tubercles: Here is one which I think sufficiently obvious. We observe, that frequently, in consequence of a particular state of balance of the system, a determination is made to the lungs, which pours out red blood by anastomosis or rupture. Now we can conceive, that this determination, in a lesser degree, may be sufficient to produce some effusion into the cellular texture, not sufficient to be forced into the bronchiæ. Now, whenever such effusion happens in consequence of such weaker determination of a fluid (as we can easily conceive), which is not fit to be again reabsorbed, it will accumulate till it has formed for itself a little cyst, or what would otherwise be called a tubercle, which, like the scrofulous tubercle, will straiten and compress the neighbouring blood-vessels, and at length produce the actual hæmorrhagy. I own that this is in some measure hypothetical. Another cause, more certain in fact, is a matter of frequent observation, viz. this that tradesmen exposed to much dust are peculiarly liable to phthisis, without any other predisposition in constitution or other occurrences in life. I think that in these cases the phthisis may be imputed to the dust getting into the lungs, adhering to and stopping up some corner of the bronchiæ, and there laying the foundation to tubercles, by forming such cysts, or by irritating the neighbouring vessels, and so causing the congestions which give the appearance of tubercle.

"But the lymphatic glands may be hardened or tumified from other acrimony besides the scrofulous, as the scorbutic, venereal, and a portion of the matter of the exanthemata deposited there.

"I have spoken vaguely of effusions not fit to be re-absorbed, because I cannot ascertain the particular circumstance in which that takes place: but we see that the matter poured out into the cellular texture of the lungs, into the lymphatic glands or mucous follicles, may be of a considerable variety; and we readily perceive, that many of them may be very different from the ordinary effusions of inflammation, very different from a matter which is fit to be changed into a proper pus; and may so prove the cause of ill-conditioned ulcers: and this will account for ulcers in the lungs being so often fatal and incurable.

"Now I have taken an opportunity from this subject of giving you the great lines of the pathology of phthisis pulmonalis, and its connexion with hæmoptysis: and I have endeavoured to render it probable, that when the disease seems to proceed from the spitting of blood, this is not so much the cause itself, as rather a *symptoma causæ*.

"To finish this subject, it has been remarked by authors that phthisis proceeds from different sources: the ulcers may be the consequence of ordinary peripneumonic inflammation, or of a hæmoptysis, depending entirely on a plethoric state without previous tubercles, or even of catarrh; I say all these causes may be the foundation of phthisis; but considering how often the suppuration following inflammation is in course healed; how often hæmorrhagy from plethora occurs without producing ulcers or phthisis; and in how many instances we have catarrhal affections remaining almost through life without serious consequences, we will be readily led to think, that in all cases where phthisis followed in consequence of inflammation, hæmorrhagy, or catarrh, either other causes concurred to form the tubercles, or that these circumstances acted as causes of the tubercles, and that a tubercle, containing a matter not fit to be changed into pus, is the chief foundation of phthisis."

DCCCLXXXVI. It has been frequently supposed by physicians, that the phthisis is a contagious disease; and I dare not assert that it never is such: but in many hundred instances of the disease which I have seen, there has been hardly one which to me could appear to have arisen from contagion. It is possible, that in warmer climates the effects of contagion may be more discernible.

After having said, that a phthisis arises from tubercles more frequently than from any other cause, and after having attempted to assign the variety of these, I now proceed to mention the peculiar circumstances and symptoms which usually accompany the coming on of the disease from tubercles.

DCCCLXXXVII. A tuberculous and purulent state of the lungs has been observed in very young children, and in some others at several different periods before the age of puberty and full growth; but instances of this kind are rare: and the attack of phthisis, which we have reason to impute to tubercles, usually happens at the same period which I have assigned for the coming on of the hæmoptysis.

DCCCLXXXVIII. The phthisis from tubercles does also generally affect the same habits as the hæmoptysis, that is, persons of a slender make, of long necks, narrow chests, and prominent shoulders: but very frequently the persons liable to tubercles have less of the florid countenance, and of the other marks of an exquisitely sanguine temperament, than the persons liable to hæmoptysis.

DCCCLXXXIX. This disease arising from tubercles, usually commences with a slight and short cough, which becomes habitual, is often little remarked by those affected, and sometimes so little as to be absolutely denied by them. At the same time their breathing becomes easily hurried by any bodily motion, their body grows leaner, and they become languid and indolent. This state sometimes continues for a year, or even for two years, without the persons making any complaint of it, excepting only that they are affected by cold more readily than usual, which frequently increases their cough, and produces some catarrh. This, again, however, is sometimes relieved; is supposed to have arisen from cold alone; and therefore gives no alarm either to the patient or his friends, nor leads them to take any precautions.

DCCCXC. Upon one or other of these occasions of catching cold, as we commonly speak, the cough becomes more considerable; is particularly troublesome upon the patient's lying down at night, and in this state continues longer than is usual in the case of a simple catarrh. This is more especially apt to call for attention, if the increase and continuance of cough comes on during the summer season.

DCCCXCI. The cough which comes on (DCCCLXXXIX.) is very often for a long time without any expectoration; but when, from repeatedly catching cold, it becomes more constant, it is then at the same time attended with some expectoration, which is most considerable in the mornings. The matter of this expectoration becomes by degrees more copious, more viscid, and more opaque; at length of a yellow or greenish colour, and of a purulent appearance. The whole of the matter, however, is not always at once entirely changed in this manner: but while one part of it retains the usual form of mucus, another suffers the changes now described.

DCCCXCII. When the cough increases, and continues very frequent through the night, and when the matter expectorated undergoes the changes I have mentioned, the breathing at the same time becomes more difficult, and the emaciation and weakness go on also increasing. In the female sex, as the disease advances, and sometimes early in its progress, the menses cease to flow; and this circumstance is commonly the effect, although the sex themselves are ready to believe it the sole cause of the disease.—" I have, when importuned in the cases, declined giving deobstruent remedies. I have here given a *placebo*, and have thought it a pious, innocent, and natural fraud."

DCCCXCIII. When the cough comes on, as stated in DCCCLXXXIX. the pulse is often natural, and for some time after continues to be so, but the symptoms have seldom subsisted long before the pulse becomes frequent, and sometimes to a considerable degree, without much of the other symptoms of fever. At length, however, evening exacerbations become remarkable; and by degrees the fever assumes the exquisite form of hectic, as described in DCCCLVIII.—DCCCLX.

DCCCXCIV. It is seldom that the cough, expectoration, and fever, go on increasing, in the manner now described, without some pain being felt in some part of the thorax. It is usually and most frequently felt at first under the sternum, and that especially, or almost only, upon occasion of coughing: but very often, and that, too, early in the course of the disease, a pain is felt in one side, sometimes very constantly, and so as to prevent the person from lying easily upon that side; but at other times, the pain is felt only upon a full inspiration, or upon coughing. Even when no pain is felt, it generally happens, that phthisical persons cannot lie easily on some one of their sides, without having their difficulty of breathing increased, and their cough excited.

DCCCXCV. The phthisis begins and sometimes proceeds to its fatal issue, in the manner described from DCCCLXXXIX. to DCCCXCV., without any appearance of hæmoptysis. Such cases are indeed rare; but it is very common for the disease to advance far, and even to an evident purulency and hectic state, without any appearance of blood in the spitting: so that it may be affirmed, the disease is frequently not founded in hæmoptysis. At the same time, we must allow, not only that it sometimes begins with an hæmoptysis, as is said in DCCCLXIV., but further, that it seldom happens, that in the progress of the disease more or less of an hæmoptysis does not appear. Some degree of blood-spitting does indeed appear sometimes in the state mentioned DCCCLXXXIX. DCCCXCIII., but more commonly in the more advanced stages of the disease only, and particularly upon the first appearance of purulency. However this may be, it is seldom, in the phthisis from tubercles, that the hæmoptysis is considerable, or requires any remedies different from those which are otherwise necessary for the state of the tubercles.

DCCCXCVI. I have now described a succession of symptoms which, in different cases, occupy more or less time. In this climate they very often take up some years, the symptoms appearing especially in the winter and spring, commonly becoming easier, and sometimes almost disappearing during the summer; but returning again in winter, they at length, after two or three years, prove fatal, towards the end of spring or beginning of summer.

DCCCXCVII. In this disease, the prognosis is for the most part unfavourable. Of those affected with it, the greater number die; but there are also many of them who recover entirely, after having been in very unpromising circumstances. What are, however, the circumstances more certainly determining to a happy or to a fatal event, I have not yet been able to ascertain.

DCCCXCVIII. The following aphorisms are the result of my observations.

A phthisis pulmonalis from hæmoptysis, is more frequently recovered than one from tubercles.

An hæmoptysis not only is not always followed by a phthisis, as we have said above (DCCCLXIV.), but even when followed by an ulceration, the ulceration is sometimes attended with little of hectic, and frequently admits of being soon healed. Even when the hæmoptysis and ulceration have happened to be repeated, there are instances of persons recovering entirely after several such repetitions.

A phthisis from a suppuration in consequence of pneumonic inflammation, is that which most rarely occurs in this climate; and a phthisis does not always follow such suppuration, when the abscess formed soon breaks and discharges a laudable pus; but, if the abscess continue long shut up, and till after a considerable degree of hectic has been formed, a phthisis is then produced, equally dangerous as that from other causes.

A phthisis from tubercles has, I think, been recovered; but it is of all others the most dangerous; and, when arising from a hereditary taint, is almost certainly fatal.

The danger of a phthisis, from whatever cause it may have arisen, is most certainly to be judged of by the degree to which the hectic and its consequences have arrived. From a certain degree of emaciation, debility, profuse sweating, and diarrhœa, no person recovers.

A mania coming on, has been found to remove all the symptoms, and sometimes has entirely cured the disease; but, in other cases, upon the going off of the mania, the phthisis has recurred, and proved fatal.

The pregnancy of women has often retarded the progress of a phthisis; but commonly it is only till after delivery, when the symptoms of phthisis return with violence, and soon prove fatal.

SECT. II.—OF THE CURE OF PHTHISIS.

DCCCXCIX. From what has been just now said, it will readily appear, that the cure of the Phthisis pulmonalis must be exceedingly difficult; and that even the utmost care and attention in the employment of remedies, have seldom succeeded. It may be doubtful whether this failure is to be imputed to the imperfection of our art, or to the absolutely incurable nature of the disease. I am extremely averse in any case to admit of the latter supposition, and can always readily allow of the former; but, in the mean time, must mention here, what has been attempted towards either curing or moderating the violence of this disease.

"I have often regretted the impotency of physic, and often wished to improve this part of our art, but want of genius, and a life constantly distracted with occupations has prevented me: but be you intent upon it, and hope for some favourable discovery.

"You will find nothing satisfactory in books. I have endeavoured to throw some light on the subject; *cui bono*, time must determine.

"I have brought the pathology to one view, by alleging that all the fatal cases are founded in the tubercles of various kinds, and from various sources, but all agreeing in this, that they contain a matter not convertible into laudable pus."

DCCCC. It must be obvious, that according to the different circumstances of this disease, the method of cure must be different. Our first attention should be employed in watching the approach of the disease, and preventing its proceeding to an incurable state.

In all persons of a phthisical habit, and especially in those born of phthisical parents, the slightest symptoms of the approach of phthisis, at the phthisical period of life, ought to be attended to.

DCCCCI. When an hæmoptysis occurs, though it be not always followed with ulceration and phthisis, these however are always to be apprehended; and every precaution is to be taken against them. This is especially to be done, by employing every means of moderating the hæmorrhagy, and of preventing its return, directed in DCCXCII. *et seq.*, and these precautions ought to be continued for several years after the occurrence of the hæmoptysis.

DCCCCII. The phthisis which follows a suppuration from pneumonic inflammation, can only be prevented with certainty, by obtaining a resolution of such inflammation. What may be attempted towards the cure of an abscess and ulcer which have taken place, I shall speak of hereafter.

DCCCCIII. I have said, it is doubtful if a genuine catarrh ever produces a phthisis; but have allowed that it possibly may: and both upon this account, and upon account of the ambiguity which may arise, whether the appearing catarrh be a primary disease, or the effect of a tubercle, I consider it as of consequence to cure a catarrh as soon as possible after its first appearance. More especially when it shall linger, and continue for some time, or shall, after some intermission, frequently return, the cure of it should be diligently attempted. The measures requisite for this purpose shall be mentioned afterwards, when we come to treat of catarrh as a primary disease; but, in the mean time, the means necessary for preventing its producing a phthisis shall be mentioned immediately, as they are the same with those I shall point out as necessary for preventing a phthisis from tubercles.

DCCCCIV. The preventing of a phthisis from asthma must be, by curing, if possible, the asthma, or at least by moderating it as much as may be done: and as it is probable that asthma occasions phthisis, by producing tubercles, the measures necessary for preventing phthisis from asthma, will be the same with those necessary in the case of tubercles, which I am now about to mention.

DCCCCV. I consider tubercles as by much the most frequent cause of phthisis; and even in many cases where this seems to depend upon hæmoptysis, catarrh, or asthma, it does however truly arise from tubercles. It is upon this subject, therefore, that I shall have occasion to treat of the measures most commonly requisite for curing phthisis.

"With regard to the cure of the tubercle, and the ill-conditioned ulcer proceeding from the tubercle, we at present know little with any precision or certainty; and, I believe, in our present views, we must allow them to be the work of nature, and we can only avoid their further irritations, by preventing as much as possible the determination to the lungs."

DCCCCVI. When, in a person born of phthisical parents, of a phthisical habit, at the phthisical period of life, the symptoms (DCCCLXXXIX.) in the spring, or beginning of summer, shall appear in the slightest degree, we may presume that a tubercle, or tubercles, either have been formed or are forming in the lungs; and, therefore, that every means we can devise for preventing their formation, or for procuring their resolution, should be employed immediately, even although the patient himself should overlook or neglect the symptoms, as imputing them to accidental cold.

"I know that a person under these circumstances is running into a phthisis, as well as if I looked into his lungs: and if I knew any certain or plausible remedy, I would, in a manner, force it on the patient, though neither he nor his friends were apprehensive of danger. I have seen, that when I had prescribed a low diet, it has been said, that a debility had been induced by it, which was never afterwards recovered, but which in fact was owing to the disease itself."

DCCCCVII. This is certainly the general indication; but how it may be executed, I cannot readily say. I do not know that, at any time, physicians have proposed any remedy capable of preventing the formation of tubercles, or of resolving them when formed. The analogy of scrofula gives no assistance in this matter. In the scrofula the remedies that are seemingly of most power, are, sea-water, or certain mineral waters; but these have generally proved hurtful in the case of tubercles of the lungs. I have known several instances of mercury very fully employed for certain diseases in persons who were supposed, at the same time, to have tubercles formed, or forming, in their lungs; but though the mercury proved a cure for those other diseases, it was of no service in preventing phthisis, and in some cases seemed to hurry it on.

DCCCCVIII. Such appears to me to be the present state of our art, with respect to the cure of tubercles; but I do not despair of a remedy for the purpose being found hereafter. In the meantime, all that at present seems to be within the reach of our art, is to take the measures proper for avoiding the inflammation of tubercles. It is probable that tubercles may subsist long without producing any disorder; and I am disposed to think, that nature sometimes resolves and discusses tubercles which have been formed; but that nature does this only when the tubercles remain in an uninflamed state; and, therefore, that the measures necessary to be taken, are chiefly those for avoiding the inflammation of the tubercles.

DCCCCIX. The inflammation of a tubercle of the lungs is to be avoided upon the general plan of avoiding inflammation, by blood-letting, and by an antiphlogistic regimen; the chief part of which, in this case, is the use of a low diet. This supposes a total abstinence from animal food, and the using of vegetable food almost alone: but it has been found, that it is not necessary for the patient to be confined to vegetables of the weakest nourishment, it being sufficient, that the farinacea be employed, and together with these, milk.

" Dover, about fifty years ago, published a book in which he advanced very confidently a number of strange facts, and amongst the rest, that tubercles of the lungs were cured by repeated blood-lettings. I have seen these small bleedings often tried and repeated from the fortieth to the sixtieth time; but the disease was never cured by them; it went on and proved fatal; and certainly the fate of the patient was sometimes hurried on. Bleedings in the beginning of the disease, however, in a plethoric habit, and sanguine temperament, and when an inflammatory crust has appeared, are certainly useful."

DCCCCX. Milk has been generally considered as the chief remedy in phthisis, and in the case of every tendency to it; but whether from its peculiar qualities, or from its being of a lower quality with respect to nourishment, than any food entirely animal, is not certainly determined. The choice and administration of milk will be properly directed, by considering the nature of the milk of the several animals from which it may be taken, and the particular state of the patient with respect to the period and circumstances of the disease, and to the habits of his stomach with respect to milk.

DCCCCXI. A second means of preventing the inflammation of the tubercles of the lungs, is, by avoiding any particular irritation of the affected part which may arise from any violent exercise of respiration; from any considerable degree of bodily exercise; from any position of the body, which straitens the capacity of the thorax; and, lastly, from cold applied to the surface of the body, which determines the blood in greater quantity to the internal parts, and particularly to the lungs.

" A certain degree of force and vigour in the system is necessary to obviate or resist the effects of cold: so there may be danger on the one hand of debilitating the system too much, and exposing it to be acted upon by cold, while on the other we oppose the phlogistic diathesis; it is therefore not proper to take down the diet to the lowest, but to live on such a one as is not favourable to the plethoric state, and the phlogistic diathesis without going further."

DCCCCXII. From the last-mentioned consideration, the application of cold in general, and therefore the winter season in cold climates, as diminishing the cutaneous perspiration, is to be avoided; but more particularly that application of cold is to be shunned, that may suppress perspiration to the degree of occasioning a catarrh, which consists in an inflammatory determination to the lungs, and may therefore most certainly produce an inflammation of the tubercles there.

By considering, that the avoiding heat is a part of the antiphlogistic regimen above recommended, and by comparing this with what has been just now said respecting the avoiding cold, the proper choice of climates and seasons for phthisical patients will be readily understood.

" We know, that if the phlogistic diathesis is induced in a warm season from any particular topical affection or irritation, or from any other cause than the cold of winter, that warm season proves indeed a strong aggravation of it; and the summer of a warm climate will carry on the progress of phthisis further in a few weeks than a colder one in as many months. We have been commonly in the practice of sending our phthisical patients to warm climates; but let me observe, that experience has shewn, that their abode there during the summer generally is very suddenly pernicious; and, therefore, we say, that external warmth is to be avoided in every circumstance of the phthisical state."

DCCCCXIII. A third means of avoiding the inflammation of the tubercles of the lungs, consists in diminishing the determination of the blood to the lungs, by supporting and increasing the determination to the surface of the body; which is to be chiefly and most safely done by warm clothing, and the frequent use of the exercises of gestation.

DCCCCXIV. Every mode of gestation has been found of use in phthisical cases; but riding on horseback, as being accompanied with a great deal of bodily exercise, is less safe in persons liable to an hæmoptysis.

" Riding requires attention to the circumstance, if spitting of blood has occurred in consequence of a plethoric state. It is true that in such persons riding may be hazardous; and I have, in consequence of the agitation of riding, seen the spitting of blood renewed, and in some persons who bore riding at certain times, in other circumstances, when the vessels were fuller, the riding was unluckily applied. But, on the other hand, I think I have seen certain cures performed by means of riding: I have known persons who spit blood at every cough they gave, and yet, after they had been for some hours on horseback, not a drop would appear in their spitting. I have had very singular proofs of the same in gestation: in some instances violent jolts of the carriage renewed the hæmoptysis, but it disappeared entirely after a journey of a day or two."

Travelling in a carriage, unless upon very smooth roads, may also be of doubtful effect; and all the modes of gestation that are employed on land, may fall short of the effects expected from them, because they cannot be rendered sufficiently constant; and therefore it is, that sailing, of all other modes of gestation, is the most effectual in pneumonic cases, as being both the smoothest and most constant.

It has been imagined, that some benefit is derived from the state of the atmosphere upon the sea; but I cannot find, that any impregnation of this which can be supposed to take place, can be of service to phthisical persons. It is however probable, that frequently some benefit may be derived from the more moderate temperature and greater purity of the air upon the sea.

DCCCCXV. In order to take off any inflammatory determination of the blood into the vessels of the lungs, blisters applied to some part of the thorax may often be of service; and for the same purpose, as well as for moderating the general inflammatory state of the body, issues of various kinds may be employed with advantage.—"It is only in the form of issues that the effects can be continued for the length of time that the course of the disease commonly requires."

DCCCCXVI. The several measures to be pursued in the case of what is properly called an Incipient Phthisis, have now been mentioned; but they have seldom been employed in such cases in due time, and have therefore, perhaps, seldom proved effectual. It has more commonly happened, that after some time, an inflammation has come upon the tubercle, and an abscess has been formed, which opening into the cavity of the bronchiæ, has produced an ulcer, and a confirmed phthisis.

DCCCCXVII. In this state of matters, some new indications different from the former may be supposed to arise; and indications for preventing absorption, for preventing the effects of the absorbed matter upon the blood, and for healing the ulcer, have been actually proposed. I cannot find, however, that any of the means proposed for executing these indications, are either probable or have proved effectual. If, upon some occasions they have appeared to be useful, it has been probably by answering some other intention.

While no antidote against the poison which especially operates here seems to have been as yet found out, it appears to me that too great a degree of inflammation has a great share in preventing the healing of the ulcer which occurs; and such inflammation is certainly what has a great share in urging on its fatal consequences. The only practice, therefore, which I can venture to propose, is the same in the ulcerated as in the crude state of a tubercle; that is, the employment of means for moderating inflammation, which have been already mentioned (DCCCCIX. *et seq.*)

DCCCCXVIII. The balsamics, whether natural or artificial, which have been so commonly advised in cases of phthisis, appear to me to have been proposed upon no sufficient grounds, and to have proved commonly hurtful. The resinous and acrid substance of myrrh, lately recommended, has not appeared to me to be of any service, and in some cases to have proved hurtful.

DCCCCXIX. Mercury, so often useful in healing ulcers, has been speciously enough proposed in this disease; but whether that it be not adapted to the particular nature of the ulcers of the lungs occurring in phthisis, or that it proved hurtful, because it cannot have effect without exciting such an inflammatory state of the whole system, as, in a hectic state, must prove very hurtful, I cannot determine. Upon many trials which I have seen made, it has proved of no service, and commonly has appeared to be manifestly pernicious.

DCCCCXX. The Peruvian bark has been recommended for several purposes in phthisical cases; and it is said upon some occasions to have been useful; but I have seldom found it to be so; and as by its tonic power it increases the phlogistic diathesis of the system, I have frequently found it hurtful. In some cases, where the morning remissions of the fever were considerable, and the noon exacerbations well marked, I have observed the Peruvian bark given in large quantities, with the effect of stopping these exacerbations, and at the same time of relieving the whole of the phthisical symptoms: but in the cases in which I observed this, the fever showed a constant tendency to recur; and at length the phthisical symptoms also returned, and proved quickly fatal.

"As the phthisis pulmonalis depends so often upon tubercles of a peculiar nature, which with no probability can be resolved by the bark, so this is another reason for my avoiding the use of it in this disease. But whether there be cases resembling very exactly the phthisis from tubercles, in which, however, there are none present, and therefore a more curable disease, and perhaps admitting the use of the bark, I cannot positively determine; but I am disposed to believe, that there are cases with all the symptoms of phthisis pulmonalis, without tubercles, and depending on a successful formation and healing again of small vomicæ, in which case the bark may possibly be useful. In all the cases of convalescence which happen after purulent expectoration, I judge the disease to have been of this kind.—*M.M.*

DCCCCXXI. Acids of all kinds, as antiseptic and refrigerant, are useful in cases of phthisis; but the native acid of vegetables is more useful than the fossil acids, as it can be given in much larger quantities, and may also be given more safely than vinegar, being less liable to excite coughing.

DCCCCXXII. Though our art can do so little towards the cure of this disease, we must, however, palliate the uneasy symptoms of it as well as we can. The symptoms especially urgent, are the cough and diarrhœa. The cough may be in some measure relieved by demulcents (DCCCLXXIII.); but the relief obtained by these is imperfect and transitory, and very often the stomach is disturbed by the quantity of oily, mucilaginous, and sweet substances, which are on these occasions taken into it.

DCCCCXXIII. The only certain means of relieving the cough, is by employing opiates. These, indeed, certainly increase the phlogistic diathesis of the system; but commonly they do not so much harm in this way, as they do service by quieting the cough and giving sleep. They are supposed to be hurtful by checking expectoration; but they do it for a short time only; and, after a sound sleep, the expectoration in the morning is more easy than usual. In the advanced state of the disease, opiates seem to increase the sweatings that occur; but they compensate this, by the ease they afford in a disease which cannot be cured.

DCCCCXXIV. The diarrhœa which happens in the advanced state of this disease, is to be palliated by moderate astringents, mucilages, and opiates.

Rhubarb, so commonly prescribed in every diarrhœa, and all other purgatives, are extremely pernicious in the colliquative diarrhœa of hectics.

Fresh subacid fruits, supposed to be always laxative, are often, in the diarrhœa of hectics, by their antiseptic quality, very useful.

"When we are industrious in stopping the purging by opiates, we bring back the sweating. Opiates promote sweating, and for this they have been blamed in phthisical cases. There is sometimes ground for this, but it is uncertain also, whether we do more good by alleviating the cough, than harm by increasing sweat. In the case of purging I have no hesitation in stopping it, even with a hazard of increasing the sweat."

CHAP. V.—OF THE HÆMORRHOIS, OR OF THE HÆMORRHOIDAL SWELLING AND FLUX.

SECT. I.—OF THE PHENOMENA AND CAUSES OF THE HÆMORRHOIS.

DCCCCXXV. A discharge of blood from small tumours on the verge of the anus, is the symptom which generally constitutes the Hæmorrhois, or as it is vulgarly called, the Hæmorrhoidal Flux. But a discharge of blood from within the anus, when the blood is of a florid colour, showing it to have come from no great distance, is also considered as the same disease; and physicians have agreed in making two cases or varieties of it, under the names of External and Internal Hæmorrhois.

DCCCCXXVI. In both cases it is supposed that the flow of blood is from tumours previously formed, which are named Hæmorrhoids, or Piles; and it frequently happens, that the tumours exist without any discharge of blood, in which case, however, they are supposed to be a part of the same disease, and are named Hæmorrhoides Cæcæ, or Blind Piles.

DCCCCXXVII. These tumours, as they appear without the anus, are sometimes separate, round, and prominent, on the verge of the anus; but frequently the tumour is only one tumid ring, forming, as it were, the anus pushed without the body.

DCCCCXXVIII. These tumours, and the discharge of blood from them, sometimes come on as an affection purely topical, and without any previous disorder in other parts of the body: but it frequently happens, even before the tumours are formed, and more especially before the blood flows, that various disorders are felt in different parts of the body, as headach, vertigo, stupor, difficulty of breathing, sickness, colic-pains, pain of the back and loins; and often, together with more or fewer of these symptoms, there occurs a considerable degree of pyrexia.

The coming on of the disease with these symptoms, is usually attended with a sense of fulness, heat, itching, and pain in and about the anus.

Sometimes the disease is preceded by a discharge of serous matter from the anus: and sometimes this serous discharge, accompanied with some swelling, seems to be in place of the discharge of blood, and to relieve those disorders of the system which we have mentioned. This serous discharge, therefore, has been named the Hæmorrhois alba.

DCCCCXXIX. In the hæmorrhois, the quantity of blood discharged is different upon different occasions. Sometimes the blood flows only upon the person's going to stool; and commonly, in larger or less quantity, follows the discharge of the fæces. In other cases, the blood flows without any discharge of fæces; and then, generally, it is after having been preceded by the disorders above mentioned, when it is also commonly in larger quantity. This discharge of blood is often very considerable; and, by the repetition, it is often so great, as we could hardly suppose the body to bear but with the hazard of life. Indeed, though rarely, it has been so great as to prove suddenly fatal. These considerable discharges occur especially to persons who have been frequently liable to the disease. They often induce great debility: and frequently a leucophlegmatia, or dropsy, which proves fatal.

The tumours and discharges of blood in this disease, often recur at exactly stated periods.

DCCCCXXX. It often happens, in the decline of life, that the hæmorrhoidal flux, formerly frequent, ceases to flow; and, upon that event, it generally happens, that the persons are affected with apoplexy or palsy.

DCCCCXXXI. Sometimes hæmorrhoidal tumours are affected with considerable inflammation; which, ending in suppuration, gives occasion to the formation of fistulous ulcers in those parts.

DCCCCXXXII. The hæmorrhoidal tumours have been often considered as varicous tumours or dilatations of veins; and it is true, that in some cases varicous dilatations have appeared upon dissection. These, however, do not always appear; and I presume it is not the ordinary case, but that the tumours are formed by an effusion of blood into the cellular texture of the intestine near to its extremity. These tumours, especially when recently formed, frequently contain fluid blood; but after they have remained for some time, they are commonly of a firmer substance.

DCCCCXXXIII. From a consideration of their causes, to be hereafter mentioned, it is sufficiently probable, that hæmorrhoidal tumours are produced by some interruption of the free return of blood from the veins of the lower extremity of the rectum; and it is possible, that a considerable accumulation of blood in these veins may occasion a rupture of their extremities, and thus produce the hæmorrhagy or tumours I have mentioned. But considering that the hæmorrhagy occurring here is often preceded by pain, inflammation, and a febrile state, as well as by many other symptoms which show a connexion between the topical affection and the state of the whole system, it seems probable, that the interruption of the venous blood, which we have supposed to take place, operates in the manner explained in DCCLXIX.; and therefore, that the discharge of blood here is commonly from arteries.

DCCCCXXXIV. Some physicians have been of opinion, that a difference in the nature of the hæmorrhois, and of its effects upon the system, might arise from the difference of the hæmorrhoidal vessels from which the blood issued. But it appears to me, that hardly in any case we can distinguish the vessels from which the blood flows; and that the frequent inosculations of both the arteries and veins which belong to the lower extremity of the rectum, will render the effects of the hæmorrhagy nearly the same, from whichsoever of these vessels the blood proceed.

DCCCCXXXV. In DCCLXIX. I have endeavoured to explain the manner in which a certain state of the sanguiferous system might give occasion to an hæmorrhoidal flux; and I have no doubt, that this flux may be produced in that manner. I cannot, however, by any means admit, that the disease is so often produced in that manner, or that, on its first appearance, it is so frequently a systematic affection, as the Stahlians have imagined, and would have us to believe. It occurs in many persons before the period of life at which the venous plethora takes place; it happens to females in whom a venous plethora, determined to the hæmorrhoidal vessels, cannot be supposed; and it happens to both sexes, and to persons of all ages, from causes which do not affect the system, and are manifestly suited to produce a topical affection only.

"The case of venous congestion, connected more generally with the system, we find to be a plethoric state of the vena portarum, the cause of which we readily perceive, on considering that the venous blood here takes a particular course in its return from several veins, to be again distributed through the liver, where it has not the assistance of muscular action, and from thence appears to move slower than in any other part. Now, after a certain period of life, when the balance is thrown on the side of the veins, an accumulation of blood takes place in the system of the vena portarum, and more particularly in persons of flaccid bodies, of a sedentary life, melancholic temperament, and full living. The operation of all these causes in producing the plethoric state in the vena portarum, is very well understood among physicians; but it is not as much attended to as it ought,—that in consequence of that plethoric state a considerable resistance arises in the extremities of these veins every where, and in the hæmorrhoidal veins in particular, producing the hæmorrhoidal flux. But the same causes may act upon the other extremities of the vena portarum besides the hæmorrhoidal. Accordingly we find the effects of this plethoric congestion operating on the spleen and pancreas: but we may expect it to act more on those extremities which are most numerous, those which terminate on the whole internal surface of the alimentary canal; and, accordingly, dissections have shewn frequent instances of effusion of blood on the internal surface of the alimentary canal, in a great measure resembling the hæmorrhoidal tumours and flux; for, on the surface of the canal also, vessels are ruptured, and occasion an effusion into the cavity of the intestine. It is this that so frequently exhibits to us the *atra bilis* of the ancients. The effusion which I have explained, will account for the black petechiæ and grumous blood, so frequently found in the course of the alimentary canal; and we can easily understand, that when blood is effused, the coagulable lymph will concrete with the red globules, and the thinner fluid being washed away, we find the remainder of various consistence. I observe all this to take notice of a matter which I can only touch by the by, the *morbus niger*, which consists entirely in this effusion of blood upon the internal surface of the alimentary canal. Sauvages has it, in his Nosology, under the name of *Melœna.* I have omitted it in my Synopsis, merely because I am a little uncertain how far to consider it as an idiopathic, and how far as a symptomatic disease: but I say now, that if I had been to introduce it in the Synopsis, it would have been by putting it under the title of hæmorrhois, agreeably to the explanation which I have given: but I should then have been obliged to make some alteration in the generic character."

DCCCCXXXVI. These causes of a topical affection are, in the first place, the frequent voiding of hard and bulky fæces, which, not only by their long stagnation in the rectum, but especially when voided, must press upon the veins of the anus, and interrupt the course of the blood in them. It is for this reason that the disease happens so often to persons of a slow and bound belly.

DCCCCXXXVII. From the causes just now mentioned, the disease happens especially to persons liable to some degree of a prolapsus ani. Almost every person, in voiding fæces, has the internal coat of the rectum more or less protruded without the body; and this will be to a greater or less degree, according as the hardness and bulk of the fæces occasion a greater or less effort or pressure upon the anus. While the gut is thus pushed out, it often happens that the sphincter ani is contracted before the gut is replaced; and in consequence thereof, a strong constriction is made, which preventing the fallen-out gut from being replaced, and at the same time preventing the return of blood from it, occasions its being considerably swelled, and its forming a tumid ring round the anus.

DCCCCXXXVIII. Upon the sphincter's being a little relaxed, as it is immediately after its strong contraction, the fallen-out portion of the gut is commonly again taken within the body; but, by the frequent repetition of such an accident, the size and fulness of the ring formed by the fallen-out gut, is much increased. It is therefore more slowly and difficultly replaced; and in this consists the chief uneasiness of hæmorrhoidal persons.

DCCCCXXXIX. As the internal edge of the ring mentioned, is necessarily divided by clefts, the whole often assumes the appearance of a number of distinct swellings; and it also frequently happens, that some portions of it, more considerably swelled than others, become more protuberant, and form those small tumours more strictly called Hæmorrhoids or Piles.

DCCCCXL. From considering that the pressure of fæces, and other causes interrupting the return of venous blood from the lower extremity of the rectum, may operate a good deal higher up in the gut than that extremity, it may be easily understood that tumours may be formed within the anus; and probably it also happens, that some of the tumours formed without the anus, as in DCCCCXXXIX., may continue when taken within the body, and even be increased by the causes just now mentioned. It is thus that I would explain the production of internal piles, which, on account of their situation and bulk, are not protruded on the person's going to stool, and are often therefore more painful. The same internal piles are more especially painful when affected by the hæmorrhagic effort, described in DCCXLV. and DCCLXIX.

DCCCCXLI. The production of piles is particularly illustrated by this, that pregnant women are frequently affected with them. This is to be accounted for, partly from the pressure of the uterus upon the rectum, and partly from the costive habit to which pregnant women are usually liable. I have known many instances of piles occurring for the first time during the state of pregnancy; and there are few women that have borne children, who are afterwards entirely free from piles. The Stahlians have commonly asserted, that the male sex is more frequently affected with this disease than the female; but in this country I have constantly found it otherwise.

DCCCCXLII. It is commonly supposed, that the frequent use of purgatives, especially of those of the more acrid kind, and more particularly of aloetics, is apt to produce the hæmorrhoidal affection; and as these purgatives stimulate chiefly the great guts, it seems sufficiently probable that they may excite this disease.

DCCCCXLIII. I have now mentioned several causes which may produce the hæmorrhoidal tumours and flux as a topical affection only; but must observe farther, that although the disease appears first as a purely topical affection, it may, by frequent repetition, become habitual, and therefore may become connected with the whole system, in the manner already explained with respect to hæmorrhagy in general, in DCCXLVIII.

DCCCCXLIV. The doctrine now referred to, will, it is apprehended, apply very fully to the case of the hæmorrhoidal flux; and will the more readily apply, from the person who has been once affected being much exposed to a renewal of the causes which first occasioned the disease; and from many persons being much exposed to a congestion in the hæmorrhoidal vessels, in consequence of their being often in an erect position of the body, and in an exercise which pushes the blood into the depending vessels, while at the same time, the effects of these circumstances are much favoured by the abundance and laxity of the cellular texture about the rectum.

DCCCCXLV. It is thus that the hæmorrhoidal flux is so often artificially rendered an habitual and systematic affection; and I am persuaded, that it is this which has given occasion to the Stahlians to consider the disease as almost universally such.

DCCCCXLVI. It is to be particularly observed here, that when the hæmorrhoidal disease has either been originally, or has become, in the manner just now explained, a systematic affection, it then acquires a particular connexion with the stomach, so that certain affections there excite the hæmorrhoidal disease, and certain states of the hæmorrhoidal affection excite disorders of the stomach.

It is perhaps owing to this connexion, that the gout sometimes affects the rectum. See DXXV.

SECT. II.—OF THE CURE OF HÆMORRHOIDAL AFFECTIONS.

DCCCCXLVII. Almost at all times it has been an opinion amongst physicians, and from them spread amongst the people, that the hæmorrhoidal flux is a salutary evacuation, which prevents many diseases that would otherwise have happened; and that it even contributes to give long life. This opinion, in later times, has been especially maintained by Dr.

Stahl and his followers; and has had a great deal of influence upon the practice of physic in Germany.

DCCCCXLVIII. The question arises with respect to hæmorrhagy in general, and indeed it has been extended so far by the Stahlians. I have accordingly considered it as a general question (DCCLXVII.—DCCLXXX.); but it has been more especially agitated with regard to the disease now under our consideration: And as to this, although I am clearly of opinion, that the hæmorrhois may take place in consequence of the general state of the system (DCCLXIX.), or, what is still more frequent, that by repetition it may become connected with that general state (DCCCCXLIII.), and in either case cannot be suppressed without great caution; I must beg leave, notwithstanding this, to maintain, that the first is a rare case; that generally the disease first appears as an affection purely topical (DCCCCXXXV.—DCCCCXLII.), and that the allowing it to become habitual is never proper. It is a nasty disagreeable disease, ready to go to excess, and to be thereby very hurtful, as well as sometimes fatal. At best it is liable to accidents, and thereby to unhappy consequences. I am therefore of opinion, that not only the first approaches of the disease are to be guarded against, but even that, when it has taken place for some time, from whatever cause it may have proceeded, the flux is always to be moderated, and the necessity of it, if possible, superseded.

DCCCCXLIX. Having delivered these general rules, I proceed to mention more particularly, how the disease is to be treated, according to the different circumstances under which it may appear.

When we can manifestly discern the first appearance of the disease to arise from causes acting upon the part only, the strictest attention should be employed in guarding against the renewal of these causes.

DCCCCL. One of the most frequent of the remote causes of the hæmorrhoidal affection, is a slow and bound belly (DCCCCXXXVI.): and this is to be constantly obviated by a proper diet, which each individual's own experience must direct; or, if the management of diet be not effectual, the belly must be kept regular by such medicines as may prove gently laxative, without irritating the rectum. In most cases, it will be of advantage to acquire a habit with respect to time, and to observe it exactly.

DCCCCLI. Another cause of hæmorrhois to be especially attended to, is the prolapsus or protrusion of the anus, which will readily happen on a person's having a stool (DCCCCXXXVII.). If it shall occur to any considerable degree, and at the same time be not easily and immediately replaced, it most certainly produces piles, or increases them when otherwise produced. Persons, therefore, liable to this prolapsus, should, upon their having been at stool, take great pains to have the gut immediately replaced, by lying down in a horizontal posture, and pressing gently upon the anus, till the reduction shall be completely obtained.

DCCCCLII. When the prolapsus, of which I speak, is occasioned only by voiding hard and bulky fæces, it should be obviated by the means mentioned in DCCCCL., and may be thereby avoided. But in some persons it is owing to a laxity of the rectum; in which case it is often most considerable upon occasion of a loose stool: and then the disease is to be treated by astringents, as well as by proper artifices for preventing the falling down of the gut.

"The *Galls*, finely powdered, and mixed with eight times their quantity of hog's lard, are made into an ointment: which, when applied to the anus, has been found to relieve hæmorrhoidal affections: and we have known some instances of its being useful.—*M.M.*

DCCCCLIII. These are the means to be employed upon the first approaches of the hæmorrhoidal affection; and when from neglect it shall have frequently recurred, and has become in some measure established, they are no less proper. In the latter case, however, some other means are also necessary. It is particularly proper to guard against a plethoric state of the body; consequently, to avoid a sedentary life, a full diet, and particularly intemperance in the use of strong liquor, which, as I should have observed before, is, in all cases of hæmorrhagy, of the greatest influence in increasing the disposition to the disease.

DCCCCLIV. I need hardly repeat here, that exercise of all kinds must be a chief means of obviating and removing a plethoric state of the body; but upon occasion of the hæmorrhoidal flux immediately approaching, both walking and riding, as increasing the determination of the blood into the hæmorrhoidal vessels, are to be avoided. At other times, when no such determination has been already formed, those modes of exercise may be very properly employed.

DCCCCLV. Cold bathing is another remedy that may be employed to obviate plethora, and prevent hæmorrhagy; but it is to be used with caution. When the hæmorrhoidal flux is approaching, it may be dangerous to turn it suddenly aside by cold bathing; but during the intervals of the disease, this remedy may be employed with advantage; and in persons liable to a prolapsus ani, the frequent washing of the anus with cold water may be very useful.

DCCCCLVI. These are the means for preventing the recurrence of the hæmorrhoidal flux; and in all cases, when it is not immediately approaching, they are to be employed. When it has actually come on, means are to be employed for moderating it as much as possible, by the person's lying in a horizontal position upon a hard bed; by avoiding exercise in an erect posture; by using a cool diet; by avoiding external heat; and by obviating the irritation of hardened fæces by the use of proper laxatives (DCCCCL.). From what has been said above, as to the being careful not to increase the determination of the blood into the hæmorrhoidal vessels, the propriety of these measures must sufficiently appear; and if they were not so generally neglected, many persons would escape the great trouble, and the various bad consequences, which so frequently result from this disease.

"Purgatives are truly indigestible matters, not assimilated to our fluids, and for the most part passing off entire by the anus; but in doing so, they, in a particular manner, irritate the rectum. This observation applies to all of them, but especially to the Aloes. We must obviate this, therefore, by the kind, as well as by the means of managing the purgatives; while aloe is constantly forbid, another laxative has been mentioned as a specific, viz. the Sulphur. I cannot learn that this is a specific with regard to the piles, but it is a laxative not apt to go to excess, and which we can hardly carry further than to render the body regular, and to make the usual evacuation a little more free.—From half a drachm to a drachm of the Flores Sulphuris will seldom fail to give one stool, and will seldom give more. It has this operation without heating the body, and, for the most part, without griping the bowels. These circumstances make it a most proper and convenient laxative; and were it not for the fœtor, which sometimes attends its operation, and is ready to be diffused in the air around, sulphur would be one of the most agreeable laxatives that could be employed. But it is often too weak and ineffectual. We have recourse, therefore, to other purgatives, such as the neutral salts, which, however, must not be given in full doses so as to produce copious purging, which irritates and leads again to the suppression of the evacuation; but in small doses at certain intervals, so as to keep up the usual evacuation.

"The castor oil also may sometimes be made to operate in this manner, though the frequent repetition is liable to irritate the rectum. Oil, in general, is suited to the purpose; and former practitioners made use of the common oil of olives, of almonds, &c. thrown in in doses of from two to four ounces.

"The pulp of fruits will in general answer as one of the most convenient medicines. We know, that all the acido-dulces fruits are more or less laxative, at least prove so to most persons; and I have known them often employed to obviate the costive habit. I put them in the last place, in order to apply this observation:—When the piles have become habitual, they form in most persons some connexion with the rest of the system, or at least they form such a plethora frequently returning, as has a connexion with the system, which is shown by the hæmorrhagic efforts. I believe a connexion is thus formed with the stomach, precisely analogous to the case of gout. Before the appearance of the flux the stomach is affected with various symptoms of indigestion, and experience shews that various causes which take down the tone of the stomach, may occasion a fit of piles as they do a fit of gout. In many persons, claret particularly has this effect; in others, the free use of acids of any kind, and of the acido-dulces fruits, produces the same effect in both cases, which probably also arises from passions of the mind, excess of cold, intemperance in venery, and other causes seemingly taking down the tone of the stomach, and thereby producing an hæmorrhagic effort, in consequence of the reaction of the system."

DCCCCLVII. With respect to the further cure of this disease, it is almost in two cases only that hæmorrhoidal persons call for the assistance of the physician. The one is, when the affection is accompanied with much pain; and of this there are two cases, according as the pain happens to attend the external or the internal piles.

DCCCCLVIII. The pain of the external piles arises especially when a considerable protrusion of the rectum has happened; and when, continuing unreduced, it is strangled by the constriction of the sphincter; while, at the same time, no bleeding happens to take off the swelling of the protruded portion of the intestine. Sometimes an inflammation supervenes, and greatly aggravates the pain. To relieve the pain in this case, emollient fomentations and poultices are sometimes of service; but a more effectual relief is to be obtained by applying leeches to the tumid parts.

DCCCCLIX. The other case in which hæmorrhoidal persons seek assistance, is that of excessive bleeding. Upon the opinion so generally received, of this discharge being salutary, and from the observation that upon the discharge occurring, persons have sometimes found relief from various disorders, the most part of persons liable to it are ready to let it go too far; and indeed the Stahlians will not allow it to be a disease, unless when it has actually gone to excess. I am, however, well persuaded, that this flux ought always to be cured as soon as possible.

DCCCCLX. When the disease occurs as a purely topical affection, there can be no doubt of the propriety of this rule; and, even when it has occurred as a critical discharge in the case of a particular disease, yet, when this disease shall hav been entirely cured and removed, the preventing any return o the hæmorrhois seems to be both safe and proper.

DCCCCLXI. It is only when the disease arises from a plethoric state of the body, and from a stagnation of blood in th hypochondriac region, or when, though originally topical, th disease, by frequent repetition, has become habitual, and has thereby acquired a connexion with the whole system, that any doubt can arise as to the safety of curing it entirely. Even in these cases, however, I apprehend it will be always proper to moderate the bleeding; lest, by its continuance or repetition, the plethoric state of the body, and the particular determination of the blood into the hæmorrhoidal vessels, be increased, and the recurrence of the disease, with all its inconveniencies and danger, be too much favoured.

DCCCCLXII. Further, even in the cases stated (DCCCCLXI.) in so far as the plethoric state of the body, and the tendency to that state, can be obviated and removed, this is always to be diligently attempted; and if it can be executed with success, the flux may be entirely suppressed.

DCCCCLXIII. The Stahlian opinion, that the hæmorrhoidal flux is only in excess when it occasions great debility, or a leucophlegmatia, is by no means just; and it appears to me, that the smallest approach towards *producing* either of these should be considered as an excess, which ought to be prevented from going farther.

DCCCCLXIV. In all cases, therefore, of excess, or of any approach towards it, and particularly when the disease depends upon a prolapsus ani (DCCCCLI.), I am of opinion that astringents, both internal and external, may be safely and properly employed; not indeed to induce an immediate and total suppression, but to moderate the hæmorrhagy, and by degrees to suppress it altogether, while at the same time measures are taken for removing the necessity of its recurrence.

"Alum is the only astringent, I think, employed with considerable advantage. I know many who have employed the Saccharum Saturni, either as an astringent or as a sedative, to obviate the pain, and it seems to be useful both ways: but on account of its powerful sedative effects, I think it is attended with bad consequences, and at length rather increases the relaxation. I have hitherto, therefore, confined myself to the use of alum, joined to some of the vegetable astringents in decoction."

DCCCCLXV. When the circumstances (DCCCCXLVI.), marking a connexion between the hæmorrhoidal affection and the state of the stomach occur, the measures necessary are the same as in the case of atonic gout.

CHAP. VI.—OF THE MENORRHAGIA, OR THE IMMODERATE FLOW OF THE MENSES.

DCCCCLXVI. Blood discharged from the vagina may proceed from different sources in the internal parts: but I here mean to treat of those discharges only, in which the blood may be presumed to flow from the same sources that the menses in their natural state proceed from; and which discharges alone are those properly comprehended under the present title. The title of *Metrorrhagia*, or *hæmorrhagia uteri*, might comprehend a great deal more.

DCCCCLXVII. The menorrhagia may be considered as of two kinds; either as it happens to pregnant and lying-in women, or as it happens to women neither pregnant nor having recently born children. The first kind, as connected with the circumstances of pregnancy and child-bearing (which are not to be treated of in the present course), I am not to consider here, but shall confine myself to the second kind of menorrhagia only.

DCCCCLXVIII. The flow of the menses is considered as immoderate, when it recurs more frequently, when it continues longer, or when, during the ordinary continuance, it is more abundant than is usual with the same person at other times.

DCCCCLXIX. As the most part of women are liable to some inequality with respect to the period, the duration, and the quantity of their menses; so it is not every inequality in these respects that is to be considered as a disease; but only those deviations which are excessive in degree, which are permanent, and which induce a manifest state of debility.

DCCCCLXX. The circumstances, DCCCCLXVIII., DCCCCLXIX., are those which chiefly constitute the menorrhagia: but it is proper to observe, that although I allow the frequency, duration, and quantity of the menses to be judged of by what is usual with the same individual at other times; yet there is, in these particulars, so much uniformity observable in the whole of the sex, that in any individual in whom there occurs a considerable deviation from the common measure, such a deviation, if constantly recurring, may be considered as at least approaching to a morbid state, and as requiring most of the precautions which I shall hereafter mention as necessary to be attended to by those who are actually in such a state.

DCCCCLXXI. However we may determine with respect to the circumstances, DCCCCLXVIII—DCCCCLXIX., it must still be allowed, that the immoderate flow of the menses is especially to be determined by those symptoms affecting other functions of the body, which accompany and follow the discharge.

When a larger flow than usual of the menses has been preceded by headach, giddiness, or dyspnœa, and has been ushered in by a cold stage, and is attended with much pain of the back and loins, with a frequent pulse, heat, and thirst, it may then be considered as preternaturally large.

DCCCCLXXII. When, in consequence of the circumstances DCCCCLXVIII—DCCCCLXXI., and the repetition of these, the face becomes pale; the pulse grows weak; an unusual debility is felt in exercise; the breathing is hurried by moderate exercise; when, also, the back becomes pained from any continuance in an erect posture; when the extremities become frequently cold; and when in the evening the feet appear affected with œdematous swelling; we may from these symptoms certainly conclude, that the flow of the menses has been immoderate, and has already induced a dangerous state of debility.

DCCCCLXXIII. The debility, thus induced, does often discover itself also by affections of the stomach, as anorexia and other symptoms of dyspepsia; by a palpitation of the heart, and frequent faintings; by a weakness of mind liable to strong emotions from slight causes, especially when suddenly presented.

DCCCCLXXIV. That flow of the menses, which is attended with barrenness in married women, may be generally considered as immoderate and morbid.

DCCCCLXXV. Generally, also, that flow of the menses may be considered as immoderate, which is preceded and followed by a leucorrhœa.

DCCCCLXXVI. I treat of menorrhagia here as an active hæmorrhagy, because I consider menstruation, in its natural state, to be always of that kind; and although there should be cases of menorrhagia which might be considered as purely passive, it appears to me that they cannot be so properly treated of in any other place.

DCCCCLXXLVII. The menorrhagia (DCCCCLXVIII. *et seq.*) has for its proximate cause, either the hæmorrhagic effort of the uterine vessels preternaturally increased, or a preternatural laxity of the extremities of the uterine arteries, the hæmorrhagic effort remaining as in the natural state.

DCCCCLXXVIII. The remote causes of the menorrhagia may be,

First, Those which increase the plethoric state of the uterine vessels; such as a full and nourishing diet, much strong liquor, and frequent intoxication.

" Menorrhagia is very often to be referred to the usual causes of the plethoric state, full diet, a sedentary life, or too much warmth. But particularly the indolent or sedentary life will have this effect, and may cause the disease either by general or by partial plethora. For by diminishing the perspiration, it disposes to an accumulation of the fluids in the internal vessels, and as in the male sex it produces a plethoric state of the vena portarum, so it will in the female favour congestion in the uterine system. With regard to the warmth, we might suppose that to be compensated by the perspiration which it supports, but it is not so in fact; and it produces a laxity or flaccidity in the system.

" I have hardly known any instance of drunkenness in females, which did not produce this disease, remarkable for the frequency of its periods, and the unusual quantity. Nay, in most instances where I have had occasion to know the menstrual flux continuing beyond its usual period, beyond the age of fifty, it was owing to the frequent and too free use of spirituous liquors: and I have had instances where the menstrual flux had ceased about the fiftieth year, and was again renewed, continuing till after the sixtieth, merely from this cause, so far as I could discern at least."

Secondly, Those which determine the blood more copiously and forcibly into the uterine vessels; as violent strainings of the whole body; violent shocks of the whole body from falls; violent strokes or contusions on the lower belly; violent exercise, particularly in dancing; and violent passions of the mind.

Thirdly, Those which particularly irritate the vessels of the uterus; as excess in venery; the exercise of venery in the time of menstruation; a costive habit, giving occasion to violent straining at stool; and cold applied to the feet.

Fourthly, Those which have forcibly overstrained the extremities of the uterine vessels; as frequent abortions; frequent child-bearing without nursing; and difficult tedious labours. Or,

Lastly, Those which induce a general laxity; as living much in warm chambers, and drinking much of warm enervating liquors, such as tea and coffee.

" Sometimes the cause may be supposed to be something original in the conformation of the uterus: in certain constitutions the uterus may have its vessels either of a larger size or more easily dilated; we can easily understand this; and that it does in fact occur I infer from hence, that the menstrual evacuation happens much more early in some persons than in others, or than is suited to the constitution of the uterus in this climate. I have had instances of its occurring in girls of eight years of age, and in all the years between eight and twelve, which certainly depends on the original conformation of the uterus, as we can often discover no other cause. Thus, the instances I have met with have occurred oftener in small and tender bodies than in the large and full, in whom we might have imputed it to the plethoric state in general arising much faster. We, accordingly, refer it to original conformation when it occurs in excessive quantity in bodies of a small size and slender make, without any other appearance of a plethoric state."

DCCCCLXXIX. The effects of the menorrhagia are pointed out in DCCCCLXXII., DCCCCLXXIII., where I have mentioned the several symptoms accompanying the disease; and from these the consequences to be apprehended will also readily appear.

DCCCCLXXX. The treatment and cure of the menorrhagia must be different, according to the different causes of the disease.

In all cases, the first attention ought to be given to avoiding the remote causes, whenever that can be done; and by that means the disease may be often entirely avoided.—" The cure is difficult, as you will easily see, where the disease depends upon an original conformation, or even on an acquired laxity of the uterine system or in the extremities of the uterine vessels. But as I have reason to believe, that the system of the uterus is very often independent of the rest of the system; so this affection is often to be considered as purely topical, and at the same time in a part which is beyond the reach of direct application, and little affected by general remedies."

When the remote causes cannot be avoided, or when the avoiding them has been neglected, and therefore a copious menstruation has come on, it should be moderated as much as possible, by abstaining from all exercise either at the coming on, or during the continuance of the menstruation; by avoiding even an erect posture as much as possible; by shuning external heat, and therefore warm chambers and soft beds; by using a light and cool diet; by taking cold drink, at least as far as former habits will allow; by avoiding venery; by obviating costiveness, or removing it by laxatives that give little stimulus.—" A low diet is a fundamental part of the cure: it might be observed, that as we have referred the disease to a local affection, to a laxity of the extreme vessels of the uterus, a low diet will have less effect: but even in passive hæmorrhagies, which depend on the laxity of the vessels, the natural impetus of the blood is too much for the firmness of these vessels, and certainly every increase of that impetus will readily affect them. Nothing is more necessary in the very case of laxity, than to take down, if possible, the impetus of the blood, by observing a strict, low, and cooling diet."

The sex are commonly negligent, either in avoiding the remote causes, or in moderating the first beginnings of this disease. It is by such neglect that it so frequently becomes violent, and of difficult cure; and the frequent repetition of a copious menstruation may be considered as a cause of great laxity in the extreme vessels of the uterus.—"I would wish to have it inculcated upon women, that this should sooner engage their attention; for I have reason to believe, from many cases which have occurred to me, that it is one of the most frequent causes of barrenness in married women, and independently of that, the cause of a variety of other disorders."

DCCCCLXXXI. When the coming on of the menstruation has been preceded by some disorder in other parts of the body, and is accompanied with pains of the back, resembling parturient pains, together with febrile symptoms, and when at the same time the flow seems to be copious, then a bleeding at the arm may be proper, but it is not often necessary; and it will in most cases be sufficient to employ, with great attention and diligence, those means for moderating the discharge which have been mentioned in the last paragraph.

"It is very possible that venesection, as in the case of other plethoric and hæmorrhagic dispositions, may be sometimes useful: but if you recollect what I said in general with respect to the little effect which it has on topical affections, and how often this disease does not depend on general plethora, but is purely local, you will understand why venesection may be but little efficacious: it is not possible to repeat it so often as might seem necessary here, considering the frequent recurrence of the disease, as it cannot be done without producing more mischief by inducing general plethora."

DCCCCLXXXII. When the immoderate flow of the menses shall seem to be owing to a laxity of the vessels of the uterus, as may be concluded from the general debility and laxity of the person's habit; from the remote causes that have occasioned the disease (DCCCCLXXVIII.); from the absence of the symptoms which denote increased action in the vessels of the uterus (DCCCCLXXI.); from the frequent recurrence of the disease; and particularly from this, that in the intervals of menstruation the person is liable to a leucorrhœa: then, in such case, the disease is to be treated, not only by employing all the means mentioned in DCCCCLXXX. for moderating the hæmorrhagy, but also by avoiding all irritation, every irritation having the greater effect in proportion as the vessels have been more lax and yielding. If, in such a case of laxity, it shall appear that some degree of irritation concurs, opiates may be employed to moderate the discharge; but in using these much caution is requisite.—"In the menorrhagia which happens to women who are not pregnant, I have not found opium of service: but, in the cases of abortion and of child-bearing, the hæmorrhagy very often depends upon spasmodic affections; in quieting of which, opium may be highly useful.—*M.M.*

If, notwithstanding these measures having been taken, the discharge shall prove very large, astringents, both external and internal, may be employed. In such cases, may small doses of emetics be of service?

"The only astringent which has any pretensions to efficacy is alum. It may be of service in menorrhagia and other uterine hæmorrhagies, which often depend upon a laxity of the vessels of the uterus; and we have often found it to be so. It should be given at first in small doses, as it is ready to irritate the stomach, and in several instances I have found it rejected by vomiting; and what is more extraordinary, I have known large doses of it operate as a purgative. In urgent cases, however, the doses must be frequently repeated and increased, for it has been only from large quantities given that its effects have appeared to be considerable. We begin by giving it in doses of five grains, but have gone the length of a scruple, and have given such a dose several times a day.—*M.M.*

DCCCCLXXXIII. When the menorrhagia depends on the laxity of the uterine vessels, it will be proper, in the intervals of menstruation, to employ tonic remedies, as cold bathing and chalybeates. The exercises of gestation also may be very useful, both for strengthening the whole system, and for taking off the determination of the blood to the internal parts.

"I have no doubt that many cases of this increased evacuation depend upon a general flaccidity or loss of tone in the system, and so far they may be obviated by tonic remedies; but it will require some nicety to discern when their application is proper, and when the disease depends on a degree of phlogistic diathesis, in which case, all such means of increasing the tone would likewise increase the disease.

"Some physicians are pleased with the singular proposition, that chalybeates and the bark are equally fitted to an excessive flow of the menses, as on other occasions to their suppression. There may possibly be circumstances in which they are adapted to both; but from that very consideration it appears that they are ambiguous remedies, and to be used with much caution."

In the menorrhagia, where the disease depends upon a laxity of the extremities of the uterine vessels, which are therefore readily opened by every irritation applied to the system, or to the diseased part: in such cases, the bark is the most proper, and when the remote and exciting causes can be avoided, an effectual remedy. Upon this subject, two remarks may be made: one is, that though a hæmorrhagy may seem to be excited by irritation, it is not, therefore, to be concluded to be of the active kind, and, therefore, forbidding the use of the bark. The other remark is, that the bark, in passive hæmorrhagy, does not act as an astringent, in which way its powers are very inconsiderable, but as a tonic, which might be hurtful in any hæmorrhagy of an active kind.—*M.M.*

DCCCCLXXXIV. The remedies mentioned in these last two paragraphs may be employed in all cases of menorrhagia, from whatever causes it may have proceeded, if the disease shall have already induced a considerable degree of debility in the body.

CHAP. VII.—OF THE LEUCORRHŒA, FLUOR ALBUS, OR WHITES.

DCCCCLXXXV. Every serous or puriform discharge from the vagina may be, and has been, comprehended under one or other of the appellations I have prefixed to this chapter. Such discharges, however, may be various, and may proceed from various sources, not yet well ascertained. But I confine myself here to treat of that discharge alone which may be presumed to proceed from the same vessels which, in their natural state, pour out the menses.

DCCCCLXXXVI. I conclude a discharge from the vagina to be of this kind: 1. From its happening to women who are subject to an immoderate flow of the menses, and liable to this from causes weakening the vessels of the uterus. 2. From its appearing chiefly, and often only a little before, as well as immediately after, the flow of the menses. 3. From the flow of the menses being diminished in proportion as the leucorrhœa is increased. 4. From the leucorrhœa continuing after the menses have entirely ceased, and with some appearance of its observing a periodical recurrence. 5. From the leucorrhœa being accompanied with the effects of the menorrhagia (DCCCCLXXII. DCCCCLXXIII.). 6. From the discharge having been neither preceded by, nor accompanied with, symptoms of any topical affections of the uterus. 7. From the leucorrhœa not having appeared soon after communication with a person who might be suspected of communicating infection, and from the first appearance of the disease not being accompanied with any inflammatory affection of the pudenda.

DCCCCLXXXVII. The appearance of the matter discharged in the leucorrhœa is very various with respect to consistence and colour; but from these appearances, it is not always possible to determine concerning its nature, or the particular source from whence it proceeds.

DCCCCLXXXVIII. The leucorrhœa, of which I am to treat, as ascertained by the several circumstances mentioned in DCCCCLXXXVI., seems to proceed from the same causes as that species of menorrhagia which I suppose to arise from the laxity of the extreme vessels of the uterus. It accordingly often follows or accompanies such a menorrhagia; but though the leucorrhœa depends chiefly upon the laxity mentioned, it may have proceeded from irritations inducing that laxity, and seems to be always increased by any irritations applied to the uterus.

DCCCCLXXXIX. Some authors have alleged that a variety of circumstances in other parts of the body may have a share in bringing on and in continuing this affection of the uterus now under consideration. But I cannot discover the reality of those causes; and it seems to me, that this leucorrhœa, excepting in so far as it depends upon a general debility of the system, is always primarily an affection of the uterus; and the affections of other parts of the body which may happen to accompany it, are for the most part to be considered as effects, rather than as causes.

DCCCCXC. The effects of the leucorrhœa are much the same with those of menorrhagia; inducing a general debility, and in particular a debility in the functions of the stomach. If, however, the leucorrhœa be moderate, and be not accompanied with any considerable degree of menorrhagia, it may often continue long without inducing any great degree of debility; and it is only when the discharge has been very copious as well as constant, that its effects in that way are very remarkable.

DCCCCXCI. But even when its effects upon the whole body are not very considerable, it may still be supposed to weaken the genital system; and it seems sufficiently probable that this discharge may often have a share in occasioning barrenness.

DCCCCXCII. The matter discharged in the leucorrhœa is at first generally mild. But after some continuance of the disease, it sometimes becomes acrid; and by irritating, or perhaps eroding, the surfaces over which it passes, induces various painful disorders.

DCCCCXCIII. As I have supposed that the leucorrhœa proceeds from the same causes as that species of menorrhagia which is chiefly owing to a laxity of the uterine vessels, it must be treated, and the cure attempted, by the same means as delivered in DCCCCLXXXII. for the cure of menorrhagia, and with less reserve in respect of the use of astringents.

DCCCCXCIV. As the leucorrhœa generally depends upon a great loss of tone in the vessels of the uterus, the disease has been relieved, and sometimes cured, by certain stimulating medicines, which are commonly determined to the urinary passages, and from the vicinity of these are often communicated to the uterus. Such, for example, are cantharides, turpentine, and other balsams of a similar nature.

" It appears to be the analogy of gleet that has led practitioners to employ the terebinthinate medicines in the fluor albus of females; I have frequently employed them, but seldom with success; and one hinderance has been, that few female stomachs can be brought to bear the quantities of the medicine that might be necessary.—*M.M.*

" The turpentine and other balsams are particularly determined to the urinary passages, and very often with a considerable irritation: I have known this irritation upon the neck of the bladder, and a considerable suppression of urine in consequence of it, brought on by the indiscreet use of the Balsam of Copaiba. Their operation in leucorrhœa can only depend on some degree of inflammation being communicated by the urinary passage to the neighbouring system of the uterus.

"Under the genus *Menorrhagia*, I have set down the title of *Abortus*. I find, that with regard to this, I cannot arrive at such clearness as I could wish: I find the whole theory of pregnancy involved in a great deal of obscurity, and therefore we cannot clearly perceive on what circumstance its subsistence or occasional interruption may depend. I shall, however, give you some of my views and conjectures upon the subject: I imagine that the causes of abortion may be referred to two general heads.

"The first are such as occasion a separation of the placenta and uterus, in consequence of some defect in the afflux of blood from the uterus to the placenta, and again from the fœtus to placenta and uterus. For the purpose of pregnancy, the vessels of the uterus suffer a considerable dilatation, especially in such parts as are to be immediately joined with the placenta: Now in certain conditions, analogous to the Emansio mensium in the unimpregnated state, the flow of blood into these vessels may be interrupted by the deprivation of a considerable quantity of blood, in consequence of any considerable evacuation or hæmorrhagy in other parts of the system, and particularly from some excess in venesection. The mutual inosculation of the vessels of the uterus and of the placenta, may also be destroyed by a spasmodic constriction in the extremities of the vessels of the uterus, induced by fever, &c., from which a separation of these vessels from those of the placenta may occur. On the other hand, certain conditions and faults in the state of the fœtus may interrupt the due return of blood from the fœtus to the placenta, whereby the inosculation between the latter and the uterus may cease.

"The second head of the causes of Abortion may be referred to every circumstance which increases to an undue degree the impetus of the blood in the vessels of the uterus, in consequence of which a rupture in the communicating vessels ensues, and the blood is poured out into the cavity of the uterus, in consequence of which abortion necessarily takes place. In whatever mode we may explain this, we are very sure of the fact, to which we can very frequently impute the abortions produced by external violence, and by all undue efforts of the body itself; and we can, with equal probability, suppose various internal causes increasing the quantity and impetus of the blood in the vessels of the uterus to act in this manner. To the same head we must refer certain spasmodic constrictions excited in the muscular fibres of the uterus, by which the ordinary birth is carried on, but which may occur at any period of pregnancy from various causes, but very often from the undue accumulation of blood in the vessels of the uterus.

"It is the latter head of causes which can be most distinctly observed to take place: and it comes to be precisely a case of Menorrhagia; and both the theory and practice delivered with respect to that affection will apply here, especially duly-timed venesection, avoiding all the violent motions of the body, the application of various modes of refrigeration, in short almost every practice in Menorrhagia, as it depends either on the increased quantity and impetus of the blood in the vessels of the uterus, or merely on an ordinary impetus acting upon weak and flaccid extremities."

CHAP. VIII.—OF THE AMENORRHŒA, OR INTERRUPTION OF THE MENSTRUAL FLUX.

DCCCCXCV. Whatever, in a system of methodical nosology, may be the fittest place for the Amenorrhœa, it cannot be improper to treat of it here as an object of practice, immediately after having considered the menorrhagia.

"When I thought it necessary to admit Amenorrhœa into the Nosology, I was at a loss where to place it. I have put it among the *morbi locales*, and to be sure, it may often be considered as such; but it is too often connected with the general system, to allow this to be sufficiently exact: I am not clear how to relieve myself from this difficulty, but I am certain, that this is the proper place for considering it with a view to practice, as we properly notice the defect with the excess of evacuation."

DCCCCXCVI. The interruption of the menstrual flux is to be considered as of two different kinds; the one being when the menses do not begin to flow at that period of life at which they usually appear, and the other being that when, after they have repeatedly taken place for some time, they do, from other causes than conception, cease to return at their usual periods: The former of these cases is named the *retention*, and the latter the *suppression* of the menses.

"Pathologists have generally supposed a third case, viz. that of some matter obstructing the extreme vessels of the uterus, and preventing the due passage of the blood. I do not argue against the possibility of such a cause; but it is purely hypothetical, no evidence can be produced of its actually taking place, and we abstain particularly from it, because it can have no influence upon practice."

DCCCCXCVII. As the flowing of the menses depends upon the force of the uterine arteries impelling the blood into their extremities, and opening these so as to pour out red blood; so the interruption of the menstrual flux must depend, either upon the want of due force in the action of the uterine arteries, or upon some preternatural resistance in their extremities. The former I suppose to be the most usual cause of retention, the latter the most common cause of suppression; and of each of these I shall now treat more particularly.

DCCCCXCVIII. The retention of the menses, the *emansio mensium* of Latin writers, is not to be considered as a disease merely from the menses not flowing at that period which is usual with most other women. This period is so different in different women, that no time can be precisely assigned as proper to the sex in general. In this climate, the menses usually appear about the age of fourteen: But in many they appear more early, and in many not till the sixteenth year: in which last case it is often without any disorder being thereby occasioned. It is not, therefore, from the age of the person that the retention is to be considered as a disease; and it is only to be considered as such, when, about the time the menses usually appear, some disorders arise in other parts of the body which may be imputed to their retention; being such as when arising at this period, are known from experience to be removed by the flowing of the menses.

DCCCCXCIX. These disorders are a sluggishness and frequent sense of lassitude and debility, with various symptoms of dyspepsia; and sometimes with a preternatural appetite. At the same time, the face loses its vivid colour, becomes pale, and sometimes of a yellowish hue; the whole body becomes pale and flaccid; and the feet, and perhaps also a great part of the body, become affected with œdematous swelling. The breathing is hurried by any quick or laborious motion of the body, and the heart is liable to palpitation and syncope. A headach sometimes occurs; but more certainly pains of the back, loins, and haunches.

M. These symptoms, when occurring in a high degree, constitute the *chlorosis* of authors, hardly ever appearing separate from the retention of the menses; and, attending to these symptoms, the cause of this retention may, I think, be perceived.

These symptoms manifestly show a considerable laxity and flaccidity of the whole system; and therefore give reason to conclude, that the retention of the menses accompanying them, is owing to a weaker action of the vessels of the uterus; which, therefore, do not impel the blood into their extremities with a force sufficient to open these, and pour out blood by them.

MI. How it happens that at a certain period of life a flaccidity of the system arises in young women not originally affected with any such weakness or laxity, and of which, but a little time before, they had given no indication, may be difficult to explain; but I would attempt it in this way.

As a certain state of the ovaria in females prepares and disposes them to the exercise of venery about the very period at which the menses first appear, it is to be presumed, that the state of the ovaria, and that of the uterine vessels, are in some measure connected together; and, as generally symptoms of a change in the state of the former appear before those of the latter, it may be inferred, that the state of the ovaria has a great share in exciting the action of the uterine vessels, and producing the menstrual flux. But, analogous to what happens in the male sex, it may be presumed, that, in females, a certain state of the genitals is necessary to give tone and tension to the whole system; and therefore that, if the stimulus arising from the genitals be wanting, the whole system may fall into a torpid and flaccid state, and from thence the chlorosis and retention of the menses may arise.

MII. It appears to me, therefore, that the retention of the menses is to be referred to a certain state or affection of the ovaria: But what is precisely the nature of this affection, or what are the causes of it, I will not pretend to explain; nor can I explain in what manner that primary cause of retention is to be removed. In this, therefore, as in many other cases, where we cannot assign the proximate cause of diseases, our indications of cure must be formed for obviating and removing the morbid effects or symptoms which appear.

MIII. The effects, as has been said in M., consist in a general flaccidity of the system, and consequently in a weaker action of the vessels of the uterus; so that this debility may be considered as the more immediate cause of the retention. This, therefore, is to be cured by restoring the tone of the system in general, and by exciting the action of the uterine vessels in particular.

MIV. The tone of the system, in general, is to be restored by exercise, and, in the beginning of the disease, by cold bathing. At the same time, tonic medicines may be employed; and of these the chalybeates have been chiefly recommended.

"The application of cold may, on many occasions, produce a constriction in the extremities of the vessels of the uterus, and prevent the flux of the menses, but I know that these effects are not constant, and to be apprehended only at the very time when these vessels ought to yield: I have known several instances of cold bathing having been continued during the whole time of menstruation without any such consequences: and cold bathing, considered as a tonic, may certainly be employed at those times when nothing depends upon the precise state of the exhalents, with advantage and safety; as I have known from frequent experience, and especially in the beginning of the *emansio*, before any degree of the chlorotic state had taken place. For when the loss of tone has gone to a certain degree, I have some doubts with regard to the application of such a powerful refrigerant as the cold bath. I imagine the cold bath is a more powerful tonic than either chalybeates or the bark."

MV. The action of the vessels of the uterus may be excited: *First*, By determining the blood into them more copiously; which is to be done by determining the blood into the descending aorta, by purging, by the exercise of walking, by friction, and by warm bathing of the lower extremities. It is also probable, that the blood may be determined more copiously into the hypogastric arteries which go to the uterus, by a compression of the iliacs; but the trials of this kind hitherto made have seldom succeeded.

MVI. *Secondly*, The action of the uterine vessels may be excited by stimulants applied to them. Thus, those purgatives which particularly stimulate the intestinum rectum, may also prove stimulant to the uterine vessels connected with those of the rectum. The exercise of venery certainly proves a stimulus to the vessels of the uterus; and therefore may be useful when, with propriety, it can be employed. The various medicines recommended as stimulants of the uterine vessels, under the title of Emmenagogues, have never appeared to me to be effectual; and I cannot perceive that any of them are possessed of a specific power in this respect.

"The writers on the materia medica, both ancient and modern, particularly the former, mention many medicines as emmenagogues; and I have employed a great number of those recommended by them; but I have been so very often disappointed of the wished for effects, that I have ventured to allege, that the ancient writers had not on this subject spoken from experience. These disappointments which I have met with, I find to have also happened to my fellow practitioners; and I have not, among the most experienced, found any one who does not acknowledge his failure in employing the emmenagogue medicines recommended by writers, nor who does not own, that he cannot, almost in any case of Amenorrhœa with much confidence promise success in curing it.—*M.M.*

"Aloes may be said to determine to the uterus; but it is by determining to the hæmorrhoidal system. All the fetid gums have somewhat of the same quality of stimulating the hæmorrhoidal vessels, and therefore the vessels of the uterus: but they have no particular determination to the latter, except in as far as they act as antispasmodics, in removing some spasmodic constriction of the vessels of the uterus, in which view they may sometimes be of considerable use.

The fetid gums have always been recommended as emmenagogues; and certainly the asafœtida should have the best pretensions to this power: but whether it be owing to the imperfect state in which we too frequently have this medicine, or to somewhat in the nature of the amenorrhœa, I would not positively determine; but this is certain, that I have very seldom succeeded in employing the asafœtida as an emmenagogue.—Upon the authority of Dr. Mead, the Black Hellebore has been often, and I have seen it often, employed as an emmenagogue: but whether from the imperfect state of the medicine, from improper administration, or from other causes, I would not determine; but I can assure my readers, that in many trials, I have never found the emmenagogue virtues of this medicine; nor have I met with any practitioners in this country, who had better success in this respect; and particularly neither in my own practice, nor that of others, have I met with one instance of the power of hellebore in producing hæmorrhagy.—Saffron has been especially famous for its supposed emmenagogue powers, and in one or two instances I have had reason to believe in its power of this kind: but in many other instances, though repeatedly employed in large doses, it has entirely disappointed my expectations.—Savin is a very acrid and heating substance; and I have been often, upon account of these properties, prevented from employing it in the quantity perhaps necessary to render it emmenagogue. I must own, however, that it shews a more powerful determination to the uterus than any other plant I have employed: but I have been frequently disappointed in this; and its heating qualities always require a great deal of caution.—It is only when amenorrhœa can be considered as a part of a spasmodic affection that the *Oleum Succini* shews any emmenagogue powers.—In some cases of retention and chlorosis, I have found the Aristolochia useful as a warm and stimulating medicine: but in cases of suppression I never found it of any use.—*M.M.*

Mercury, as an universal stimulant, may act upon the uterus, but cannot be very safely employed in chlorotic persons.—"The late Dr. David Clerk, physician to the Royal Infirmary, tried mercury frequently with advantage in that hospital. I have several times repeated the practice, both in hospital and in private cases, not always, but very frequently, with success. In cases with very great flaccidity of the system and loss of tone, I do not find that I can employ the mercury so long or to such a degree as to restore the tone: for its powers consist chiefly in exciting the action of the extreme vessels; and when the effects of the Emansio have gone on to the length of the hydropic diathesis, it can be seldom employed with safety."

One of the most powerful means of exciting the action of the vessels, in every part of the system, is the electrical shock; and it has often been employed with success for exciting the vessels of the uterus.

MVII. The remedies (MIII.—MVI.) now mentioned, are those adapted to the *retention* of the menses; and I am next to consider the case of *suppression*. In entering upon this, I must observe, that every interruption of the flux, after it has once taken place, is not to be considered as a case of suppression. For the flux, upon its first appearance, is not always immediately established in its regular course; and therefore, if an interruption happen soon after the first appearance, or even in the course of the first, or perhaps second year after, it may often be considered as a case of retention, especially when the disease appears with the symptoms peculiar to that state.

MVIII. Those which may be properly considered as cases of suppression, are such as occur after the flux has been for some time established in its regular course, and in which the interruption cannot be referred to the causes of retention (MII. MIII.), but must be imputed to some resistance in the extremities of the vessels of the uterus. Accordingly, we often find the suppression induced by cold, fear, and other causes, which may produce a constriction of these extreme vessels. Some physicians have supposed an obstructing lentor of the fluids to occasion the resistance now mentioned: but this is purely hypothetical, without any proper evidence of the fact; and it is, besides, from other considerations, improbable.

MIX. There are, indeed, some cases of suppression that seem to depend upon a general debility of the system and consequently of the vessels of the uterus. But, in such cases, the suppression always appears as symptomatic of other affections, and is therefore not to be considered here.—"It is very analogous to the case of Emansio, and therefore is to be treated in the same manner."

MX. The idiopathic cases of suppression (MVIII.) seldom continue long without being attended with various symptoms or disorders in different parts of the body; very commonly arising from the blood which should have passed by the uterus being determined more copiously into other parts, and very often with such force as to produce hæmorrhagies in these. Hence, hæmorrhagies from the nose, lungs, stomach, and other parts, have appeared in consequence of suppressed menses. Besides these, there are commonly hysteric and dyspeptic symptoms produced by the same cause, and frequently colic pains, with a bound belly.

MXI. In the idiopathic cases of suppression (MVIII.), the indication of cure is to remove the constriction affecting the extreme vessels of the uterus; and, for this purpose, the chief remedy is warm bathing applied to the region of the uterus. This, however, is not always effectual; and I do not know of any other remedy adapted to the indication. Besides this, we have perhaps no other means of removing the constriction in fault, but that of increasing the action and force of the vessels of the uterus, so as thereby to overcome the resistance or constriction of their extremities. This, therefore, is to be attempted by the same remedies in the case of suppression, as those prescribed in the cases of retention (MIV.—MVI.). The tonics, however, and cold bathing (MIV.), seem to be less properly adapted to the cases of suppression, and have appeared to me of ambiguous effect.

MXII. It commonly happens in the cases of suppression, that though the menses do not flow at their usual periods, there are often at those periods some marks of an effort having a tendency to produce the discharge. It is, therefore, at those times especially when the efforts of the system are concurring, that we ought to employ the remedies for curing a suppression; and it is commonly fruitless to employ them at other times, unless they be such as require some continuance in their use to produce their effects.

MXIII. Nearly similar to the cases of suppression are those cases in which the menses flow after long intervals, and in less quantity than usual; and when these cases are attended with the disorders in the system, MX., they are to be cured by the same remedies as the cases of entire suppression.

MXIV. It may be proper, in this place, to take notice of the dysmenorrhœa, or cases of menstruation, in which the menses seem to flow with difficulty, and are accompanied with much pain in the back, loins, and lower belly. We impute this disorder partly to some weaker action of the vessels of the uterus, and partly, perhaps more especially, to a spasm of its extreme vessels. We have commonly found the disease relieved by employing some of the remedies of suppression immediately before the approach of the period, and at the same time employing opiates.

"I have frequently met with cases of dysmenorrhœa, with all the marks of distention in the neighbouring parts, and particularly pains shooting through the belly, which sufficiently expressed that there had been accumulation and some hæmorrhagic effort, but a resistence in the extreme vessels. In these cases I have constantly recourse to opium, and hardly ever without success. And so far from opium being liable to suppress the menstrual flux, or any other hæmorrhagy, I maintain that, in many respects, it has a tendency to increase them; and, in so far as the suppression of the flow depends on the spasm I speak of, we must naturally suppose that opium is the proper remedy. I have accordingly frequently obviated those pains that accompany the hæmorrhagic effort, as I call it, and not only produced more immediately the menstrual flux, but in larger quantity than usually attends those cases of dysmenorrhœa.

"Before I dismiss this subject, I would observe, that the constriction of the extreme vessels may be a simple nervous affection, without any connexion with the rest of the system of the blood-vessels, which is probably the case upon many occasions. But often it may be properly a phlogistic spasm, connected with a phlogistic diathesis, which is, or may be, excited in the rest of the system. The last certainly takes place when the hæmorrhagic effort is communicated to other parts of the system, and produces hæmorrhagies there. In such cases it is obvious that venesection is a proper remedy. The common principle on which it is practised here, is for the purpose of revulsion; for which I have found very little foundation on any occasion."

CHAP. IX.—OF SYMPTOMATIC HÆMORRHAGIES.

MXV. I have thought it very improper, in this work, to treat of those morbid affections that are almost always symptomatic of other more primary diseases; and this for several reasons, particularly because it introduces a great deal of confusion in directing practice, and leads physicians to employ palliative measures only. I shall here, however, deviate a little from my general plan, to make some reflections upon symptomatic hæmorrhagies.

MXVI. The hæmorrhagies of this kind that especially deserve our notice, are the Hæmatemesis, or Vomiting of Blood; and the Hæmaturia, or the Voiding of Blood from the urinary passage. Upon these I am here to make some remarks; because, though they are very generally symptomatic, it is possible they may be sometimes primary and idiopathic affections; and because they have been treated of as primary diseases in almost every system of the practice of physic.

SECT. I.—OF THE HÆMATEMESIS, OR VOMITING OF BLOOD.

MXVII. I have said above in DCCCXLV., in what manner blood thrown out from the mouth may be known to proceed from the stomach, and not from the lungs: but it may be proper here to say more particularly, that this may be certainly known when the blood is brought up manifestly by vomiting without any coughing; when this vomiting has been preceded by some sense of weight, anxiety, and pain, in the region of the stomach; when the blood brought up is of a black and grumous appearance, and when it is manifestly mixed with other contents of the stomach: we can seldom have any doubt of the source from whence the blood proceeds, and therefore of the existence of the disease we treat of.

MXVIII. We must allow it to be possible that a plethoric state of the body from general causes, may be accompanied with causes of a peculiar determination and afflux of blood to the stomach, so as to occasion an hæmorrhagy there, and thence, a vomiting of blood; and in such a case this appearance might be considered as a primary disease. But the history of diseases in the records of physic afford little foundation for such a supposition; and, on the contrary, the whole of the instances of a vomiting of blood which have been recorded are pretty manifestly symptomatic of a more primary affection.

Of such symptomatic vomitings of blood, the chief instances are the following.

MXIX. One of the most frequent is that which appears in consequence of a suppression of an evacuation of blood which had been for some time before established in another part of the body, particularly that of the menstrual flux in women.

MXX. There are instances of a vomiting of blood happening from the *retention* of the menses; but such instances are very uncommon; as a retention of the menses rarely happens in consequence of, or even with, a plethoric state of the body; and as rarely does it produce that, or the hæmorrhagy in question.

There are instances of a vomiting of blood happening to pregnant women; that might therefore also be imputed to the suppression of the menses, which happens to women in that state. There have indeed been more instances of this than of the former case; but the latter are still very rare: For, although the blood which used to flow monthly before impregnation, is, upon this taking place, retained, it is commonly so entirely employed in dilating the uterine vessels, and in the growth of the fœtus, that it is seldom found to produce a plethoric state of the body, requiring a vicarious outlet.

The vomiting of blood, therefore, that is vicarious of the menstrual flux, is that which commonly, and almost only, happens upon a suppression of that flux, after it had been for some time established.

MXXI. When such a suppression happens, it may be supposed to operate by inducing a plethoric state of the whole body, and thereby occasioning hæmorrhagy from other parts of it; and hæmorrhagies from many different parts of the body have been observed by physicians as occurring in consequence of the suppression we speak of. It is, however, the great variety of such hæmorrhagies that leads me to think, that, with the plethoric state of the whole body, there must be always some peculiar circumstances in the part from which the blood flows, that determines its afflux to that particular, often singularly odd part; and, therefore, that such hæmorrhagies may, from these circumstances, occur without any considerable plethora at the same time prevailing in the whole system.

MXXII. It is to be observed, that, if we are to expect an hæmorrhagy in consequence of a suppression of the menses inducing a plethoric state of the system, we should expect especially an hæmoptysis, or hæmorrhagy from the lungs, as a plethora might be expected to show its effects especially there; and accordingly, upon occasion of suppressed menses, that hæmorrhagy occurs more frequently than any other: But, even this, when it does happen, neither in its circumstances nor its consequences, leads us to suppose, that, at the same time, any considerable or dangerous plethora prevails in the body.

MXXIII. These considerations in MXXI. MXXII., will, I apprehend, apply to our present subject; and I would therefore allege, that a hæmatemesis may perhaps depend upon particular circumstances of the stomach determining an afflux of blood to that organ, and may therefore occur without any considerable or dangerous plethora prevailing in the system. What are the circumstances of the stomach, which, upon the occasion mentioned, may determine an afflux of blood to it, I cannot certainly or clearly explain; but I presume that it depends upon the connexion and consent which we know to subsist between the uterus and the whole of the alimentary canal, and especially that principal part of it, the stomach.

MXXIV. From these reflections we may, I think, draw the following conclusions:—

1. That the hæmatemesis we speak of is hardly ever a dangerous disease.

2. That it will hardly ever require the remedies suited to the cure of active hæmorrhagy; and at least that it will require these only in those unusual cases in which there appear strong marks of a general plethora, and in which the vomiting of blood appears to be considerably active, very profuse, and frequently recurring.

3. That a vomiting of blood from suppressed menses ought seldom to prevent the use of those remedies of amenorrhœa, which might be improper in the case of an active idiopathic hæmorrhagy.

MXXV. Another case of symptomatic hæmatemesis, quite analogous to that already mentioned, is the hæmatemesis following, and seemingly depending upon the suppression of an hæmorrhoidal flux, which had been established and frequent for some time before.

This may perhaps be explained by a general plethoric state induced by such a suppression; and indeed some degree of a plethoric state must, in such a case, be supposed to take place: but that supposition alone will not explain the whole of the case; for a general plethora would lead us to expect an hæmoptysis, (MXXII.), rather than an hæmatemesis; and there is therefore something still wanting, as in the former case, to explain the particular determination to the stomach.

Whether such an explanation can be got from the connexion between the different parts of the sanguiferous vessels of the alimentary canal, or from the connexion of the whole of these vessels with the vena portarum, I shall not venture to determine. But in the meantime, I imagine that the explanation required is rather to be obtained from that connexion of the stomach with the hæmorrhoidal affection that I have taken notice of in DCCCCXLVI.

MXXVI. However we may explain the hæmatemesis occasioned by a suppression of the hæmorrhois, the considerations in MXXI. MXXII. will apply here as in the analogous case of hæmatemesis from suppressed menses; and will therefore allow us also to conclude here, that the disease we now treat of will seldom be dangerous, and will seldom require the same remedies that idiopathic and active hæmorrhagy does.

MXXVII. The cases of hæmatemesis already mentioned may be properly supposed to be hæmorrhagies of the arterial kind; but it is probable that the stomach is also liable to hæmorrhagies of the venous kind (DCCLXVIII.).

In the records of physic, there are many instances of vomitings of blood, which were accompanied with a tumefied spleen, which had compressed the vas breve, and thereby prevented the free return of venous blood from the stomach. How such an interruption of the venous blood may occasion an hæmorrhagy from either the extremities of the veins themselves, or from the extremities of their correspondent arteries, we have explained above in DCCLXIX.; and the histories of tumefied spleens compressing the vasa brevia, afford an excellent illustration and confirmation of our doctrine on that subject, and render it sufficiently probable that vomitings of blood often arise from such a cause.

MXXVIII. It is also possible that an obstruction of the liver resisting the free motion of the blood in the vena portarum, may sometimes interrupt the free return of the venous blood from the vessels of the stomach, and thereby occasion a vomiting of blood; but the instances of this are neither so frequent, nor so clearly explained, as those of the former case.

MXXIX. Besides these cases depending on the state of the liver or spleen, it is very probable that other hæmorrhagies of the stomach are frequently of the venous kind.

The disease named by Sauvages, Melæna, and by other writers, commonly termed the Morbus Niger (DCCLXXI.), consisting in an evacuation either by vomiting or by stool, and sometimes in both ways, of a black and grumous blood, can hardly be otherwise occasioned, than by a venous hæmorrhagy from some part of the internal surface of the alimentary canal.

It is indeed possible, that the bile may sometimes put on a black and viscid appearance, and give a real foundation for the appellation of an Atra Bilis: but it is certain that instances of this are very rare; and it is highly probable, that what gave occasion to the notion of an Atra Bilis among the ancients, was truly the appearance of blood poured into the alimentary canal in the manner I have mentioned; and which appearance, we know, the blood always puts on, when it has stagnated there for any length of time. I suppose it is now generally thought that

Boerhaave's notion of such a matter existing in the mass of blood is without any foundation; whilst, by dissections in modern times, it appears very clearly that the morbus niger presenting such an appearance of blood, always depends upon the effusion and stagnation I have mentioned.

MXXX. From this account of the melæna it will appear, that vomitings of blood may arise in consequence of blood being poured out in the manner I have mentioned, either into the cavity of the stomach itself, or into the superior portions of the intestines, from whence matters often pass into the stomach.

MXXXI. Both in the case of the melæna, and in the analogous cases from affections of the spleen or liver, it will appear that the vomitings of blood occurring must be considered as symptomatic affections, not at all to be treated as a primary active hæmorrhagy, but by remedies, if any such be known, that may resolve the primary obstructions.

MXXXII. I believe I have now mentioned almost the whole of the causes producing a hæmatemesis; and certainly the causes mentioned are those which most commonly give occasion to that symptom. Possibly, however, there may be some other causes of it, such as that singular one mentioned by Sauvages, of an aneurism of the aorta bursting into the stomach. And it is possible that some diseases of other contiguous parts, which have become closely adhering to the stomach, may sometimes, by a rupture into the cavity of the stomach, pour blood into it, which is afterwards rejected by vomiting. It is possible also that abscesses and ulcerations of the stomach itself may sometimes pour blood into its cavity, to be thrown up by vomiting.

I did not think it necessary among the symptomatic vomitings of blood, to enumerate those from external violence, nor, what is analogous to it, that which arises from violent straining to vomit, which last, however, is much more rare than might be expected. In either of these cases, the nature of the disease cannot be doubtful; and the management of it will be readily understood from what has been delivered above with respect to moderating and restraining hæmorrhagy in general.

SECT. II.—OF THE HÆMATURIA, OR THE VOIDING OF BLOOD FROM THE URINARY PASSAGE.

MXXXIII. It is alleged that an hæmaturia has occurred without any other symptom of an affection of the kidneys or urinary passages being present at the same time; and, as this happened to plethoric persons, and recurred at fixed periods, such a case has been supposed to be an instance of idiopathic hæmaturia, and of the nature of those active hæmorrhagies I have treated before.

MXXXIV. I cannot positively deny the existence of such a case, but must observe, that there are very few instances of such upon the records of physic; that none have ever occurred to my observation, or to that of my friends; and that the observations adduced may be fallacious, as I have frequently observed an hæmaturia without symptoms of other affection of the kidney or urinary passages being for the time present, whilst, however, fits of a Nephralgia calculosa having, before or soon after, happened, rendered it to me sufficiently probable that the hæmaturia was owing to a wound made by a stone present in some part of the urinary passages.

MXXXV. The existence of an idiopathic hæmaturia is further improbable, as a general plethora is more likely to produce an hæmoptysis (MXXII.), and, as we do not well know of any circumstance which might determine more particularly to the kidneys. An idiopathic hæmaturia, therefore, must certainly be a rare occurrence; and instances of symptomatic affections of the same kind are very frequent.

MXXXVI. One of the most frequent is, that hæmaturia which attends the Nephralgia calculosa, and seems manifestly to be owing to a stone wounding the internal surface of the pelvis of the kidney or of the ureter. In such cases, the blood discharged with the urine is sometimes of a pretty florid colour, but for the most part is of a dark hue: the whole of it is sometimes diffused or dissolved, and therefore entirely suspended in the urine; but, if it is in any large quantity, a portion of it is deposited to the bottom of the vessel containing the voided blood and urine. On different occasions, the blood voided puts on different appearances. If the blood poured out in the kidney has happened to stagnate for some time in the ureters or bladder, it is sometimes coagulated, and the coagulated part is afterwards broken down into a grumous mass of a black or dark colour, and therefore gives the same colour to the urine voided; or, if the quantity of broken down blood is small, it gives only a brownish colour to the urine resembling coffee. It sometimes also happens, that the blood stagnating and coagulating in the ureters takes the form of these vessels, and is therefore voided under the appearance of a worm; and if the coagulated blood happens to have, as it may sometimes have, the gluten separated from the red globules, these worm-like appearances have their external surface whitish, and the whole seemingly forming a tube containing a red liquor. I have sometimes observed the blood which had seemingly been coagulated in the ureter, come away in an almost dry state, resembling the half-burnt wick of a candle.

MXXXVII. These are the several appearances of the blood voided in the Hæmaturia calculosa, when it proceeds especially from the kidneys or ureter; and many of the same appearances are observed when the blood proceeds only from the bladder when a stone is lodged there; but the attending symptoms will commonly point out the different seat of the disease.

In one case, when a quantity of blood from the kidney or ureter is coagulated in the bladder, and is therefore difficultly thrown out from this, the pain and uneasiness on such an occasion may appear chiefly to be in the bladder, though it contains no stone; but the antecedent symptoms will commonly discover the nature of the disease.

MXXXVIII. In any of the cases of the Hæmaturia calculosa, it will hardly be necessary to employ the remedies suited to an active hæmorrhagy. It will be proper only to employ the regimen fit for moderating hæmorrhagy in general, and particularly here to avoid every thing or circumstance that might irritate the kidneys or ureters. Of such cases of irritation, there is none more frequent or more considerable, than the presence of hardened fæces in the colon; and these therefore are to be frequently removed, by the frequent use of general laxatives.

MXXXIX. The Hæmaturia calculosa may be properly considered as a case of the Hæmaturia violenta; and therefore I subjoin to that the other instances of hæmaturia from external violence, such as that from external contusion on the region of the kidney, and that from the violent or long continued exercise of the muscles incumbent on the kidneys. An instance of the latter cause occurs especially in riding.

MXL. It may also be considered as a case of the hæmaturia violenta, when the disease occurs in consequence of the taking in of certain acrid substances, which pass again especially by the urinary passages; and, by inflaming and swelling the neck of the bladder, bring on a rupture of the over-distended blood-vessels, and give occasion to a bloody urine. The most noted instance of this is in the effect of cantharides in a certain quantity, any way introduced into the body. And possibly some other acrids may have the same effect.

MXLI. Beside these most frequent instances of hæmaturia, which cannot be considered as idiopathic hæmorrhagies, there are some other instances of hæmaturia mentioned by authors, that are still however manifestly symptomatic; such as a discharge of blood from the urinary passages, in consequence of a suppression of either the menstrual or hæmorrhoidal flux. These may be considered as analogous to the hæmatemesis produced by the like causes; and the several reflections made above on that subject, will, I think, apply here, and particularly the conclusions formed in MXXIV. Instances, however, of either of these cases, and especially of the first, have been extremely rare.

MXLII. Of such symptomatic hæmaturia, there is however one instance deserving notice; and that is, when a suppression of the hæmorrhoidal flux, either by a communication of vessels, or merely by the vicinity of parts, occasions a determination of the blood into the vessels of the neck of the bladder, which, in consequence of a rixis or anastomosis, pour out blood to be voided either with or without the urine. This case is what has been named the Hæmorrhoides Vesicæ; and with some propriety, when it is manifestly an evacuation vicarious of what had before been usually made from the rectum. With respect to the management of the hæmorrhoides vesicæ, I would apply the whole of the doctrines that I have delivered above with respect to the cure of the proper hæmorrhoidal affection.

MXLIII. There remains still to be mentioned one other instance of symptomatic hæmaturia, which is that which happens in the case of confluent and putrid smallpox, as well as in several other instances of putrid diseases. The blood, in such cases, may be presumed to come from the kidneys; and I apprehend that it comes from thence in consequence of that fluidity which is always produced in the blood approaching to a putrid state. Such hæmaturia, therefore, is not to be considered as a symptom of any affection of the kidneys, but merely as a mark of the putrescent state of the blood.

MXLIV. In certain diseases, the urine is discharged of such a deep red colour, as to give a suspicion of its being tinged by blood present in it; and this has given occasion to Sauvages, amongst the other species of hæmaturia, to mark the Hæmaturia spuria, and the Hæmaturia lateritia; both of which, however, he supposes to be without any blood present in the urine. In many cases it is of importance, in ascertaining the nature of a disease, to determine whether the red colour of the urine be from blood present in it, or from a certain state of the salts and oils, which are always in greater or less proportion constituent parts of the urine; and the question may be commonly determined by the following considerations.

It has been observed above, that, when any considerable quantity of blood is voided with the urine, there is always a portion of it deposited at the bottom of the vessel containing the voided blood and urine; and in such a case there will be no doubt in attributing the colour of the urine floating above to some part of the blood diffused in it. The question, therefore, with respect to the presence of blood in the urine, can only occur when no such deposition as I have mentioned appears; and when the blood that may be supposed to be present is dissolved or diffused, and therefore entirely suspended in the urine. In this case, the presence of the blood may be commonly known,

1*st*, By the colour which blood gives, different from any urine without blood that I have ever seen; and I think a little experience will enable most persons to make this distinction.

2dly, By this, that the presence of blood always diminishes the transparency of the urine with which it is mixed; and it is very seldom that urine, though very high-coloured, loses its transparency, at least this hardly ever appears, if the urine is examined when recently voided.

3dly, When urine has blood mixed with it, it tinges a piece of linen dipt into it with a red colour, which the highest coloured urine without blood never does.

4thly, High-coloured urine without blood, upon cooling, and remaining at rest in a vessel, almost always deposites a lateritious sediment; and if, upon any occasion, bloody urine should deposite a sediment that may be of a portion of the blood formerly diffused in it, the difference, however, may be discerned by this, that the sediment deposited by urine without blood, upon the urine's being again heated, will be entirely re-dissolved, which will not happen to any sediment from blood.

Lastly, We know no state of urine without blood, which shows any portion of it coagulable by a heat equal to that of boiling water; but blood diffused in urine is still coagulable by such a heat: And by this test, therefore, the presence of blood in urine may be commonly ascertained.

BOOK V.

OF PROFLUVIA, OR FLUXES WITH PYREXIA.

MXLV. Former nosologists have established a class of diseases under the title of Fluxes, or Profluvia; but as, in this class, they have brought together a great number of diseases which have nothing in common, excepting the single circumstance of an increased discharge of fluids, and which also are, in other respects, very different from one another; I have avoided so improper an arrangement, and have distributed most of the diseases comprehended in such a class by the nosologists, into places more natural and proper for them. I have, indeed, still employed here the general title; but I confine it to such fluxes only as are constantly attended with pyrexia, and which therefore necessarily belong to the class of diseases of which I am now treating.

Of the fluxes which may be considered as being very constantly febrile diseases, there are only two, the *catarrh* and *dysentery;* and of these therefore I now proceed to treat.

CHAP. I.—OF THE CATARRH.

MXLVI. The Catarrh is an increased excretion of mucus from the mucous membrane of the nose, fauces, and bronchiæ, attended with pyrexia.

Practical writers and nosologists have distinguished the disease by different appellations, according as it happens to affect those different parts of the mucous membrane, the one part more or less than the other: But I am of opinion, that the disease, although affecting different parts, is always of the same nature and proceeds from the same cause. Very commonly indeed those different parts are affected at the same time; and therefore there can be little room for the distinction mentioned.

The disease has been frequently treated of under the title of Tussis, or Cough; and a cough, indeed, always attends the chief form of catarrh, that is, the increased excretion from the bronchiæ: But a cough is so often a symptom of many other affections which are very different from one another, that it is improperly employed as a generic title.

MXLVII. The remote cause of catarrh is most commonly cold applied to the body. This application of cold producing catarrh can in many cases be distinctly observed; and I believe it would always be so, were men acquainted with, and attentive to, the circumstances which determine cold to act upon the body. (See XCIV.—XCVI.)

From the same paragraphs, we may learn what, in some persons, gives a predisposition to catarrh.

MXLVIII. The disease of which I am now to treat, generally begins with some difficulty of breathing through the nose, and with a sense of some fulness stopping up that passage. This is also often attended with some dull pain, and a sense of weight in the forehead, as well as some stiffness in the motion of the eyes. These feelings, sometimes at their first beginning, and always soon after, are attended with the distillation from the nose and sometimes from the eyes, of a thin fluid, which is often found to be somewhat acrid, both by its taste, and by its fretting the parts over which it passes.

MXLIX. These symptoms constitute the *coryza* and *gravedo* of medical authors, and are commonly attended with a sense of lassitude over the whole body. Sometimes cold shiverings are felt, at least the body is more sensible than usual to the coldness of the air; and with all this, the pulse becomes, especially in the evenings, more frequent than ordinary.

ML. These symptoms seldom continue long before they are accompanied with some hoarseness, and a sense of roughness and soreness in the trachea, and with some difficulty of breathing, attributed to a sense of straitness of the chest, and attended with a cough, which seems to arise from some irritation felt at the glottis. The cough is generally at first dry, occasioning pains about the chest, and more especially in the breast. Sometimes, together with these symptoms, pains resembling those of the rheumatism are felt in several parts of the body, particularly about the neck and head. While these symptoms take place, the appetite is impaired, some thirst arises, and a general lassitude is felt over all the body.

MLI. These symptoms (MXLVIII.—ML.) mark the violence and height of the disease; which, however, does not commonly continue long. By degrees the cough becomes attended with a copious excretion of mucus; which is at first thin, but gradually becoming thicker, is brought up with less frequent and less laborious coughing. The hoarseness and soreness of the trachea likewise going off, the febrile symptoms abating, the cough becoming less frequent, and with less expectoration, the disease soon after ceases altogether.

MLII. Such is generally the course of this disease, which is commonly neither tedious nor dangerous; but, upon some occasions, it is in both respects otherwise. A person affected with catarrh seems to be more than usually liable to be affected by cold air; and in that condition, if exposed to cold, the disease, which seemed to be yielding, is often brought back with greater violence than before, and is rendered not only more tedious than otherwise it would have been, but also more dangerous by the supervening of other diseases.

MLIII. Some degree of the Cynanche tonsillaris often accompanies the catarrh; and when the latter is aggravated by a fresh application of cold, the cynanche also becomes more violent and dangerous, in consequence of the cough which is present at the same time.

MLIV. When a catarrh has been occasioned by a violent cause; when it has been aggravated by improper management; and especially when it has been rendered more violent by fresh and repeated applications of cold, it often passes into a pneumonic inflammation, attended with the utmost danger.

MLV. Unless, however, such accidents as those of MLII.—MLIV. happen, a catarrh, in sound persons not far advanced in life, is, I think, always a slight disease, and attended with little danger. But, in persons of a phthisical disposition, a catarrh may readily produce an hæmoptysis, or perhaps form tubercles in the lungs; and more certainly in persons who have tubercles already formed in the lungs, an accidental catarrh may occasion the inflammation of these tubercles, and in consequence produce a Phthisis pulmonalis.

MLVI. In elderly persons, a catarrh sometimes proves a dangerous disease. Many persons, as they advance in life, and especially after they have arrived at old age, have the natural mucus of the lungs poured out in greater quantity, and consequently requiring a frequent expectoration. If, therefore, a catarrh happen to such persons, and increase the afflux of fluids to the lungs, with some degree of inflammation, it may produce the Peripneumonia notha, which in such cases is very often fatal. See CCCLXXVI.—CCCLXXXII.

MLVII. The proximate cause of catarrh seems to be an increased afflux of fluids to the mucous membrane of the nose, fauces, and bronchiæ, along with some degree of inflammation affecting these parts. The latter circumstance is confirmed by this, that, in the case of catarrh, the blood drawn from a vein commonly exhibits the same inflammatory crust which appears in the case of phlegmasiæ.

MLVIII. The application of cold which occasions a catarrh, probably operates by diminishing the perspiration usually made by the skin, and which is therefore determined to the mucous membrane of the parts above mentioned. As a part of the weight which the body daily loses by insensible evacuation, is owing to an exhalation from the lungs, there is probably a connexion between this exhalation and the cutaneous perspiration, so that the one may be increased in proportion as the other is diminished: and therefore we may understand how the diminution of cutaneous perspiration, in consequence of the application of cold, may increase the afflux of fluids to the lungs, and thereby produce a catarrh.

MLIX. There are some observations made by Dr. James Keil which may seem to render this matter doubtful; but there is a fallacy in his observations. The evident effects of cold in producing coryza leave the matter in general without doubt; and there are several other circumstances which show a connexion between the lungs and the surface of the body.

MLX. Whether, from the suppression of perspiration, a catarrh be produced merely by an increased afflux of fluids, or whether the matter of perspiration be at the same time determined to the mucous glands, and there excite a particular irritation, may be uncertain; but the latter supposition is sufficiently probable.

MLXI. Although, in the case of a common catarrh, which is in many instances sporadic, it may be doubtful whether any morbific matter be applied to the mucous glands; it is, however, certain, that the symptoms of a catarrh do frequently depend upon such a matter being applied to these glands; as appears from the case of measles, chincough, and especially from the frequent occurrence of contagious and epidemical catarrh.

MLXII. The mention of this last leads me to observe, that there are two species of catarrh, as I have mentioned in my Synopsis of Nosology. One of these, as I suppose, is produced by cold alone, as has been explained above; and the other seems manifestly to be produced by a specific contagion.

Of such contagious catarrhs, I have pointed out in the Synopsis many instances occurring from the fourteenth century down to the present day. In all these instances, the phenomena have been much the same; and the disease has always been particularly remarkable in this, that it has been the most widely and generally spreading epidemic known. It has seldom appeared in any one country of Europe, without appearing successively in every other part of it; and, in some instances, it has been even transferred to America, and has been spread over that continent, so far as we have had opportunities of being informed.

MLXIII. The catarrh from contagion appears with nearly the same symptoms as those mentioned MXLVIII.—ML. It seems often to come on in consequence of the application of cold. It comes on with more cold shivering than the catarrh arising from cold alone, and sooner shows febrile symptoms, and these likewise in a more considerable degree. Accordingly, it more speedily runs its course, which is commonly finished in a few days. It sometimes terminates by a spontaneous sweat; and this, in some persons, produces a miliary eruption. It is, however, the febrile state of this disease especially that is finished in a few days; for the cough, and other catarrhal symptoms do frequently continue longer; and often, when they appear to be going off, they are renewed by any fresh application of cold.

MLXIV. Considering the number of persons who are affected with catarrh of either the one species or the other, and escape from it quickly without any hurt, it may be allowed to be a disease very free from danger: but it is not always to be considered as such; for, in some persons, it is accompanied with pneumonic inflammation. In the phthisically disposed, it often accelerates the coming on of phthisis; and, in elderly persons, it frequently proves fatal in the manner explained above, MLIV. and MLVI.

MLXV. The cure of catarrh is nearly the same, whether it proceeds from cold or contagion, with this difference, that, in the latter case remedies are commonly more necessary than in the former.

In the cases of a moderate disease, it is commonly sufficient to avoid cold, and to abstain from animal food for some days; or perhaps to lie a-bed, and, by taking frequently of some mild and diluent drink a little warmed, to promote a very gentle sweat; and after these to take care to return very gradually only to the use of the free air.

"I have known many instances of the disease, both from cold and from contagion, very shortly and safely cured by the use of sudorifics and sweating. But you will recollect what I have mentioned before (CLXVIII.) with regard to the management of the sweat, as without that it is liable to be hurtful. But it is seldom that so violent a remedy is necessary in this disease. It is commonly enough to cover the body well, and to favour the spontaneous diaphoresis which may occur. In illustration of this, we have the practice of Morgagni (Epist XIII. art. 3.), in the time of the epidemic in Italy in 1732. I have seen three or four of the present catarrhs, and I have reason to believe, that a person may be affected by them twice. I was attacked in 1733, not in 1742, but again in 1758, and in two instances since that I have not been affected. By observing Morgagni's measures, I readily obtained an entire relief; but being obliged to go abroad, I was attacked four several times in the course of one epidemic; i. e. I repeatedly caught cold, which always produced the same effect, and readily operated on my body previously weakened."

MLXVI. When the disease is more violent, not only the antiphlogistic regimen must be exactly observed, but various remedies also become necessary.

To take off the phlogistic diathesis which always attends this disease, blood-letting, in a larger or smaller quantity, and repeated according as the symptoms shall require, is the proper remedy.

For restoring the determination of the fluids to the surface of the body, and at the same time for expeding the secretion of mucus in the lungs, which may take off the inflammation of its membrane, vomiting is the most effectual means.

"In what manner, by the use of expectorants, the mucus may be brought up more largely and with more facility, I find it difficult to explain. They might perhaps do it by merely exciting coughing; but I know of no internal medicine capable of doing this; and I must here mention by the way, that I know of no means of exciting cough with expectoration, but by employing vomiting. It may also be observed, by the way, that the diseases depending upon an accumulation of mucus in the lungs, may be often relieved by medicines which determine to the surface of the body, which may diminish the determination to the lungs; and, by diminishing the quantity of mucus poured into the bronchiæ, the expectoration of what remains may be rendered more easy.—*M.M.*

For the latter purpose, it has been supposed that squills, gum ammoniac, the volatile alkali, and some other medicines, might be useful. But their efficacy has never appeared to me to be considerable; and if squills have ever been very useful, it seems to have been rather by their emetic, than by their expectorant powers.

When the inflammatory affections of the lungs seem to be considerable, it is proper, beside blood-letting, to apply blisters on some part of the thorax.

As a cough is often the most troublesome circumstance of this disease, so demulcents may be employed to alleviate it.—See CCCLXXIII.

But, after the inflammatory symptoms have much abated, if the cough should still continue, opiates afford the most effectual means of relieving it; and, in the circumstances just now mentioned, they may be very safely employed.—See CCCLXXV.

"In many persons affected with catarrh, coughing is habitual, or is readily renewed upon every slight application of cold; and in such cases and persons, opium is a sovereign remedy. Whenever, therefore, there is little fever and much coughing, it may be employed very freely, that is, in doses which have sedative effects without heating the system. But there is a catarrh arising occasionally only from a strong application of cold, almost always attended with a phlogistic diathesis of the system, and probably with a more or less inflammatory state of the mucous glands of the bronchiæ. Such a disease is to be cured by blood-letting and the antiphlogistic regimen; and the early use of opium, by confirming the inflammatory state, is hurtful.—*M.M.*

After the inflammatory and febrile states of this disease are almost entirely gone, the most effectual means of discussing all remains of the catarrhal affection, is by some exercise of gestation diligently employed.

"I find the use of the bark somewhat nice and difficult in catarrhal affections. In these, arising, as they commonly do, from cold, an inflammatory diathesis is, I believe, constantly present, and this seems to reject the use of the bark altogether. But there are two cases in which it may be admitted: the one is when the catarrhal affection is combined with an intermittent fever; and I have often observed the most frequent and violent fits of coughing to be joined with the paroxysms, and particularly with the cold stage of such paroxysms. In such cases, I not only do not avoid the bark, but fly to it with more haste.

There is also another case of catarrhal affections, in which the bark is of great service. This is in those habitual and frequently returning catarrhs which depend upon a weak and imperfect perspiration by the skin; and this again upon a weaker force in the action of the heart and arteries. In these cases, I suppose there is a greater determination to, and a greater than usual accumulation of fluids in, the lungs; and that these circumstances and their effects, are only to be obviated by invigorating the system of the aorta, for which I hold the bark and riding to be the most effectual means.—*M.M.*

CHAP II.—OF THE DYSENTERY.

MLXVII. The dysentery is a disease in which the patient has frequent stools, accompanied with much griping, and followed by a tenesmus. The stools, though frequent, are generally in small quantity; and the matter voided is chiefly mucus, sometimes mixed with blood. At the same time, the natural fæces seldom appear; and when they do, it is generally in a compact and hardened form.

MLXVIII. This disease occurs especially in summer and autumn, at the same time with autumnal intermittent and remittent fevers; and with these it is sometimes combined or complicated.

MLXIX. The disease comes on sometimes with cold shiverings, and other symptoms of pyrexia; but more commonly the symptoms of the topical affection appear first. The belly is costive, with an unusual flatulence in the bowels. Sometimes, though more rarely, some degree of diarrhœa is the first appearance. In most cases, the disease begins with gripings, and a frequent inclination to go to stool. In indulging this, little is voided; but some tenesmus attends it. By degrees, the stools become more frequent, the griping more severe, and the tenesmus more considerable. Along with these symptoms there is a loss of appetite; and frequently sickness, nausea, and vomiting, also affecting the patient. At the same time, there is always more or less of pyrexia present, which is sometimes of the remittent kind, and observes a tertian period. Sometimes the fever is manifestly inflammatory, and very often of a putrid kind. These febrile states continue to accompany the disease during its whole course, especially when it terminates soon in a fatal manner. In other cases, the febrile state almost entirely disappears, while the proper dysenteric symptoms remain for a long time after.

MLXX. In the course of the disease, whether of a shorter or longer duration, the matter voided by stool is very various. Sometimes it is merely a mucous matter, without any blood, exhibiting that disease which Dr. Rœderer has named the *Morbus mucosus*, and others the *Dysenteria alba*. For the most part, however, the mucus discharged is more or less mixed with blood. This sometimes appears only in streaks amongst the mucus; but at other times is more copious, tinging the whole of the matter discharged; and, upon some occasions, a pure and unmixed blood is voided in considerable quantity. In other respects, the matter voided is variously changed in colour and consistence, and is commonly of a strong and unusually fetid odour. It is probable that sometimes a genuine pus is voided; and frequently a putrid sanies, proceeding from gangrenous parts. There are very often mixed with the liquid matter some films of a membranous appearance, and frequently some small masses of a seemingly sebaceous matter.

MLXXI. While the stools consisting of these various matters are, in many instances, exceedingly frequent, it is seldom that natural fæces appear in them; and, when they do appear, it is, as I have mentioned, in the form of scybala, that is, in somewhat hardened, separate balls. When these are voided, whether by the efforts of nature, or as solicitated by art, they procure a remission of all the symptoms, and more especially of the frequent stools, griping, and tenesmus.

MLXXII. Accompanied with these circumstances, the disease proceeds for a longer or a shorter time. When the pyrexia attending it is of a violent inflammatory kind, and more especially when it is of a very putrid nature, the disease often terminates fatally in a very few days, with all the marks of a supervening gangrene. When the febrile state is more moderate, or disappears altogether, the disease is often protracted for weeks, and even for months; but, even then, after a various duration, it often terminates fatally, and generally in consequence of a return and considerable aggravation of the inflammatory and putrid states. In some cases, the disease ceases spontaneously: the frequency of stools, the griping and tenesmus, gradually diminishing, while natural stools return. In other cases, the disease, with moderate symptoms, continues long, and ends in a diarrhœa, sometimes accompanied with lienteric symptoms.

MLXXIII. The remote causes of this disease have been variously judged of. It generally arises in summer or autumn, after considerable heats have prevailed for some time, and especially after very warm, and at the same time very dry states of the weather; and the disease is much more frequent in warm than in cooler climates. It happens, therefore, in the same circumstances and seasons which considerably affect the state of the bile in the human body; but, as the cholera is often without any dysenteric symptoms, and copious discharges of bile have been found to relieve the symptoms of dysentery, it is difficult to determine what connexion the disease has with the state of the bile.

MLXXIV. It has been observed, that the effluvia from very putrid animal substances readily affect the alimentary canal; and, upon some occasions, they certainly produce a diarrhœa: but whether they ever produce a genuine dysentery, I have not been able to learn with certainty.

MLXXV. The dysentery does often manifestly arise from the application of cold, but the disease is always contagious; and, by the propagation of such contagion, independent of cold, or other exciting causes, it becomes epidemic in camps and other places. It is, therefore, to be doubted if the application of cold does ever produce the disease, unless where the specific contagion has been previously received into the body: And, upon the whole, it is probable that a specific contagion is to be considered as always the remote cause of this disease.

MLXXVI. Whether this contagion, like many others, be of a permanent nature, and only shows its effects in certain circumstances which render it active, or if it be occasionally produced, I cannot determine. Neither, if the latter supposition be received, can I say by what means it may be generated. As little do we know any thing of its nature, considered in itself; or at most this only, that, in common with many other contagions, it appears to be commonly of a putrid nature, and capable of inducing a putrescent tendency in the human body. This, however, does not at all explain its peculiar power in inducing those symptoms which properly and essentially constitute the disease of dysentery (MLXVII.).

MLXXVII. Of these symptoms the proximate cause is still obscure. The common opinion has been, that the disease depends upon an acrid matter received into, or generated in, the intestines themselves, exciting their peristaltic motion, and thereby producing the frequent stools which occur in this disease. But this supposition cannot be admitted; for, in all the instances known of acrid substances applied to the intestines, and producing frequent stools, they at the same time produce copious stools, as might be expected from acrid substances applied to any length of the intestines. This, however, is not the case in dysentery; in which the stools, however frequent, are generally in very small quantity, and such as may be supposed to proceed from the lower parts of the rectum only. With respect to the superior portions of the intestines, and particularly those of the colon, it is probable they are under a preternatural and considerable degree of constriction: For, as I have observed above, the natural fæces are seldom voided; and, when they are, it is in a form which gives reason to suppose they have been long retained in the cells of the colon, and consequently that the colon had been affected with a preternatural constriction. This is confirmed by almost all the dissections which have been made of the bodies of dysenteric patients, in which, when gangrene had not entirely destroyed the texture and form of the parts, considerable portions of the great guts have been found affected with a very considerable constriction.

“ I conceive the colon to be in a state of constriction, which divides it more exactly into its cells, giving occasion to the formation of the hardened balls. With this constriction there is some effort at a peristaltic motion; but this only renders the constriction of the colon more violently spasmodic, and therefore painful. This, therefore, accounts for the griping which commonly accompanies the attempts to go to stool. But a certain degree of constriction is communicated downwards to the rectum, producing the tenesmus and the little secretion which has been mentioned. This more violent spasmodic affection in the rectum may emulge its mucous glands to a certain degree, and may squeeze out blood from the superficial blood-vessels, which will explain the whole phenomena of the disease. With regard to the pustules which have been lately discovered by dissection in the whole of the great guts (See Stark, *Hist. et Sectiones Dysenteric.*), they are rather to be considered as the effect than as the cause of the disease."

MLXXVIII. I apprehend, therefore, that the proximate cause of dysentery, or at least the chief part of the proximate cause, consists in a preternatural constriction of the colon, occasioning at the same time those spasmodic efforts which are felt in severe gripings; and which efforts, propagated downwards to the rectum, occasion there the frequent mucous stools and tenesmus. But, whether this explanation shall be admitted or not, it will still remain certain, that hardened fæces retained in the colon are the cause of the griping, frequent stools, and tenesmus: For the evacuation of these fæces, whether by nature or by art, gives relief from the symptoms mentioned; and it will be more fully and usefully confirmed by this, that the most immediate and successful cure of dysentery is obtained by an early and constant attention to the preventing the constriction, and the frequent stagnation of fæces in the colon.

MLXXIX. In this manner I have endeavoured to ascertain the proximate cause of dysentery, and therefore to point out also the principal part of the cure, which, from want of the proper view of the nature of the disease, seems to have been in several respects fluctuating and undetermined among practitioners.

MLXXX. The most eminent of our late practitioners, and of greatest experience in this disease, seem to be of opinion, that the disease is to be cured most effectually by purging, assiduously employed. The means may be various; but the most gentle laxatives are usually sufficient; and, as they must be frequently repeated, the most gentle are the most safe; the more especially as an inflammatory state so frequently accompanies the disease.

"The common notion is, that purgatives ought to be given with a view to evacuate the morbific matter; and perhaps there is some foundation for that; but this is very much at random; and if we render the passage clear and easy, such morbific matter is very soon washed out of the body. Sir John Pringle has come nearer to the truth: he observes, that the evacuation of the hardened excretions found in the colon is a matter to be seriously attended to. But neither of these views come up to my idea of the matter: I say, the indication is to obviate the constriction which affects the colon, and which gives occasion to the formation of hardened fæces, and to the retention of the morbific matter which produces the other symptoms of the disease. This view will serve to modify our practice. When the constriction of the colon has been allowed to subsist for some time, somewhat of a smart and acrid purgative may be necessary, and has been found useful; and then the use of senna, recommended by Sydenham, and of rhubarb and calomel employed in latter times, may be proper. But such remedies cannot be repeated but at intervals; and, by allowing these intervals, we allow the disease to return; and the effect of acrid purgatives is always to leave the intestines in a more constricted state: hence, though they relieve the symptoms for the time, they allow the disease to return with violence. It is therefore the highest improvement in the present practice, not to employ in the commencement of the disease the more acrid purgatives, but rather the laxative medicines, and, by the frequency of their exhibition, to keep the passage of the intestines clear, till the preternatural constriction of the colon is taken off, and the whole morbific matter evacuated. So a dose of Glauber's salts, ℥ss. twice a day, or Cremor tartari employed in the same manner, has met with the most desirable success. Some employ the Decoctio Tamarindorum alone, or with Cremor tartari; some merely the fresh fruits. We have several instances in Tissot and some other writers, of an epidemic dysentery merely cured by letting soldiers into a vineyard, in consequence of which evacuations by stool without pain and griping, were brought on, and an entire cure of the disease effected."

Whatever laxatives produce an evacuation of natural fæces, and a consequent remission of the symptoms, will be sufficient to effectuate the cure. But, if gentle laxatives shall not produce the evacuation now mentioned, some more powerful medicines must be employed: and I have found nothing more proper or convenient than tartar emetic, given in small doses and at such intervals as may determine their operation to be chiefly by stool. Rhubarb, so frequently employed, is in several respects amongst the most improper purgatives.—" I advanced this doctrine before I saw Dr. Zimmermann's book; but I am pleased to see it there so fully confirmed, and I hope that physicians will lose their attachment to rhubarb. It is not a very effectual purgative, unless given in considerable doses. It has been preferred, however, on the grounds of its astringency being greater than that of others. If it is so, I say it is so much the worse, as that proceeds on the old doctrine of astringents being necessary in the cure of dysentery, the bad effects of which Dr. Zimmermann will teach you."

MLXXXI. Vomiting has been held a principal remedy in this disease; and may be usefully employed in the beginning of it, with a view to both the state of the stomach and of the fever: But it is not necessary to repeat it often; and unless the emetics employed operate also by stool, they are of little service. Ipecacuanha seems to possess no specific power; and it proves only useful when so managed as to operate chiefly by stool.

" Nothing is more common than to find in dysentery, that the stomach is peculiarly affected, whether from the fever or from an affection of the intestine, and a loss of appetite even to a degree of vomiting and nausea. Any interruption in the motions of the stomach, in preventing the progress of its fluids, favours the production of various crudities, which passing down into the intestines, may aggravate the disease. In these cases, therefore, the cure has with propriety been begun by obviating the affection of the stomach by the use of a full vomiting."

MLXXXII. For relieving the constriction of the colon, and evacuating the retained fæces, glysters may sometimes be useful: but they are seldom so effectual as laxatives given by the mouth; and acrid glysters, if they be not effectual in evacuating the colon, may prove hurtful by stimulating the rectum too much.

MLXXXIII. The frequent and severe griping attending this disease, leads almost necessarily to the use of opiates; and they are very effectual for the purpose of relieving from the gripes; but, by occasioning an interruption of the action of the small guts, they favour the contriction of the colon, and thereby sometimes aggravate the disease: and if, at the same time, the use of them supersede, in any measure, the employing of purgatives, it commonly does much mischief; I believe it indeed to be only the neglect of purging that renders the use of opiates very necessary.

"The propriety and use of opium is much disputed. I think it is a proper remedy, upon the principle which we have explained, of the disease consisting in a spasmodic constriction; and we can see its use in moderating and taking off that spasm. I can believe Sydenham, when he affirms, that several slighter cases of dysentery were cured by it alone. Whether, however, opium can here prove a cure or not, we are obliged to employ it upon another account: we are urged to it by the violence of the pain, which gives all the urgent symptoms of the disease. It has been my practice, when I gave the laxative two or three times in the day, to give an opiate with the evening dose, and I am willing even to interrupt the operation of the purgative in order to obtain a little sleep. Much has been said of the mischiefs and dangers arising from the astringency of opium; but it is not properly an astringent: it induces no contracted state of the muscular fibres, but merely interrupts their action, which was preternaturally increased; and therefore this interruption of their action, which is only temporary, cannot have much effect in confining the morbific matter. And there is this particular, which has not been much attended to: the interruption of the usual stools of dysentery does not stop the course of the morbific matter; for the latter is not evacuated in these, it being chiefly generated in the small guts, from which hardly any thing passes: what is evacuated from the rectum, is no morbid matter, but comes rather from its substance, and to interrupt such an evacuation will rather be useful and desirable, and not hurtful. So far I would speak in favour of opium in dysentery.

"But to go on to the other side of the question. It may be improperly used, and extremely hurtful: it may, for the time, in some measure take off the constriction of the colon, but it occasions a sort of interruption in the action of the small guts, which action, properly supported, urges on the proper motion of the colon. Opium contributes little to the *cure* of the disease: it only prevents its growing worse, and relieves symptoms which would otherwise prove injurious; it relieves the violent pains, but it would be very improper to trust too much to it alone. If opium supersedes the use of purgatives, or interrupts their proper operation, it certainly proves hurtful.

"I shall conclude with saying that which deserves our particular notice: if the purgatives, operating as I have formerly explained, have their usual effect in relieving griping and tenesmus, I shall allow that they may entirely supersede the use of opium; and, very possibly, the more carefully and the more powerfully we employ the laxatives, the less occasion there will be for opium."

MLXXXIV. When the gripes are both frequent and severe, they may sometimes be relieved by the employment of a semicupium, or by a fomentation of the abdomen, continued for some time. In the same case, the pains may be relieved, and, as I think, the constriction of the colon may be taken off by blisters applied to the lower belly.

MLXXXV. At the beginning of this disease, when the fever is any way considerable, blood-letting, in patients of tolerable vigour, may be proper and necessary; and when the pulse is full and hard, with other symptoms of an inflammatory disposition, blood-letting ought to be repeated.—"In that case, the use of opiates may be deceitful and even hurtful." But, as the fever attending dysentery is often of a putrid kind, or does, in the course of the disease, become soon of that nature, blood-letting must be employed with great caution.

MLXXXVI. From the account now given of the nature of this disease, it will be sufficiently obvious that the use of astringents in the beginning of it must be absolutely pernicious.

"It is extremely necessary here to take notice of an error very generally prevailing in writers on the Materia Medica, in their relating the virtues and powers of astringents. They very generally mention the virtues of astringents as equally adapted to diarrhœa and dysentery; but I maintain that these two diseases are very different from one another; so that, while diarrhœa consists in an increased evacuation from the exhalents and excretories on the internal surface of the intestines, which may be restrained by astringents applied, dysentery consists or depends upon an increased constriction in a considerable portion of the intestinal canal, which must be increased by the application of such astringents. This is now well understood, and practitioners very generally observe, that astringents are not only ineffectual, but very hurtful in dysentery; and therefore we assert, that the marking of astringents as equally adapted to both diseases, is a pernicious error.—*M. M.*

MLXXXVII. Whether an acrid matter be the original cause of this disease, may be uncertain; but from the indigestion and the stagnation of fluids in the stomach which attend the disease, it may be presumed that some acrid matters are constantly present in the stomach and intestines, and therefore that demulcents may be always usefully employed. At the same time, from this consideration, that mild oily matters thrown into the intestines in considerable quantity always prove laxative, I am of opinion that the oleaginous demulcents are the most useful.

MLXXXVIII. As this disease is so often of an inflammatory or of a putrid nature, it is evident that the diet employed in it should be vegetable and acescent. Milk in its entire state is of doubtful quality in many cases; but some portion of the cream is often allowable, and whey is always proper.

In the first stages of the disease, the sweet and subacid fruits are allowable and even proper. It is in the more advanced stages only that any morbid acidity seems to prevail in the stomach, and to require some reserve in the use of acescents. At the beginning of the disease, absorbents seem to be superfluous; and by their astringent and septic powers they may be hurtful.

MLXXXIX. When this disease is complicated with an intermittent fever, and is protracted from that circumstance chiefly, it is to be treated as an intermittent, by administering the Peruvian bark, which, however, in the earlier periods of the disease, is hardly to be admitted.

" When dysentery is of its proper nature, that is, depending chiefly on a constriction of the colon, and frequently in its beginning attended with some phlogistic diathesis, the use of the bark appears to me to be absolutely pernicious. In the beginning of dysentery we judge the bark to be improper, but in the advanced stage, when some symptoms of putrescency appear, or when the disease has changed in some measure into the state of diarrhœa, the bark may possibly be employed with advantage. In another case of dysentery, which sometimes happens, that is, when it puts on a tertian type, and may be considered as a part of the tertian fever at the same time prevailing epidemically, the bark may become an absolutely necessary remedy.—*M. M.*

PART II.

OF NEUROSES, OR NERVOUS DISEASES.

MXC. In a certain view, almost the whole of the diseases of the human body might be called NERVOUS; but there would be no use for such a general appellation; and, on the other hand, it seems improper to limit the term, in the loose inaccurate manner in which it has been hitherto applied, to hysteric or hypochondriacal disorders, which are themselves hardly to be defined with sufficient precision.

MXCI. In this place, I propose to comprehend, under the title of NEUROSES, all those preternatural affections of sense or motion which are without pyrexia, as a part of the primary disease;—(" we do not exclude from the present class those affections in which pyrexia may be present, as fever with apoplexy;")—and all those which do not depend upon a topical affection of the organs, but upon a more general affection of the nervous system, and of those powers of the system upon which sense and motion more especially depend.

" By excluding organic affections (morbus localis), we mean to confine the term Neuroses to the affections of the sensorium that have manifestly a mutual near relation, while the several organic diseases are more frequently affections of other parts than the nerves. There are in this some difficulties, but such cannot be entirely removed."

MXCII. Of such diseases I have established a class, under the title of NEUROSES OR NERVOUS DISEASES. These I again distinguish, as they consist, either in the interruption and debility of the powers of sense and motion, or in the irregularity with which these powers are exercised; and have accordingly arranged them under the four orders of *Comata*, *Adynamiæ*, *Spasmi*, and *Vesaniæ*, to be defined as we proceed to treat of them more particularly.

"With regard to the class, I have only to add that the term Neuroses is new, and I do not vouch for its propriety; but when I have given the meaning, it answers my purpose with you.

"We have to premise no general theory of the class; for the several orders have no foundation in one common affection, as in the case of the pyrexiæ. They are united only by their seat in one part of the system, and upon the presumption that sense and motion are the affections of the same part."

BOOK I.

OF COMATA, OR OF THE LOSS OF VOLUNTARY MOTION.

MXCIII. Under this title are comprehended those affections which have been commonly called the Soporose diseases; but they are most properly distinguished by their consisting in some interruption or suppression of the powers of sense and voluntary motion, or of what are called the animal functions. These are indeed usually suspended in the time of natural sleep: But, of all the diseases to be comprehended under our title, sleep, or even the appearance of it, is not constantly a symptom. Of such diseases, I can mark and properly explain two genera only, which come under the titles of *Apoplexy* and *Palsy*.

CHAP. I.—OF APOPLEXY.

MXCIV. Apoplexy is that disease in which the whole of the external and internal senses, and the whole of the voluntary motions, are in some degree abolished; while respiration, and the action of the heart, continue to be performed. By its being an affection of the *whole* of the powers of sense and of voluntary motion, we distinguish it from *Palsy;* and by its being with the continuance of respiration and the action of the heart, it is distinguished from *Syncope.* I have further added to the ordinary definition of apoplexy, that the abolition of the powers of sense and motion, is in *some degree* only; meaning by this to imply, that, under the title of apoplexy are here comprehended those diseases which, as differing from it in degree only, cannot, with a view either to pathology or practice, be properly distinguished from it: Such are the diseases sometimes treated of under the names of *Carus*, *Cataphora*, *Coma*, and *Lethargus.*

MXCV. Apoplexy, in all its different degrees, most commonly affects persons advanced in life, and especially those above sixty years of age, It most usually affects persons of large heads and short necks; persons of a corpulent habit; persons who have passed an indolent life, and used a full diet, and especially those who have indulged in frequent intoxication. Men who have long laboured under a frequent and copious discharge of blood from the hæmorrhoidal vessels, upon either the suppression or spontaneous ceasing of that discharge, are particularly liable to be affected with apoplexy.

MXCVI. This disease frequently comes on very suddenly: but, in many cases, it is preceded by various symptoms, such as frequent fits of giddiness, frequent headachs, a hæmorrhagy from the nose, some transitory interruptions of seeing and hearing, some false vision and hearing, some transitory degree of numbness or loss of motion in the extremities, some faultering of the tongue in speaking, a loss of memory, a frequent drowsiness, and frequent fits of incubus.

MXCVII. An attention to these symptoms, and to the predisponent circumstances (MXCV.), will often enable us to foresee the more violent attacks of this disease.

MXCVIII. When the disease comes on suddenly to a considerable degree, it has been frequently observed to have been immediately induced by violent exercise; by full and long-continued inspiration; by a fit of anger; by much external heat, especially that arising from a crowded assembly of people; by warm bathing; by intoxication; by long stooping with the head down; and by a tight ligature about the neck. The disease has been remarked to make its attacks most frequently in the spring season and especially when the vernal heat suddenly succeeds to the winter cold.

MXCIX. The symptoms denoting the presence of this disease will be sufficiently known from the definition given MXCIV. Although the whole of the body is affected with the loss of sense and motion, it sometimes take place more upon one side of the body than the other; and, in that case, the side least affected with palsy is sometimes affected with convulsions. In this disease there is often a stertorous breathing; and this has been said to be a mark of the most violent state of the disease: but it is not always present, even in the most complete form, or most violent degree of the disease.

MC. The proximate cause of this disease may be, in general, whatever interrupts the motion of the nervous power from the brain to the muscles of voluntary motion; or, in so far as sense is affected, whatever interrupts the motion of the nervous power from the sentient extremities of the nerves to the brain.

MCI. Such an interruption of the motions of the nervous power may be occasioned, either *by some compression of the origin of the nerves, or by something destroying the mobility of the nervous power.* Both these causes we must treat of more particularly; and, first, of that of compression, seemingly the most frequent occasion of apoplexy, and perhaps the occasion of all those apoplexies arising from internal causes.

" There arises a third set of causes, viz. those which act upon the *heart*, or, if you will, upon the *several functions of the system necessary to support that of the brain:* for certain functions of the animal economy, particularly the action of the heart in causing the motion and circulation of the blood, are necessary for the condition of the nervous fluid, and for the proper state of the organization of the brain. It is absolutely necessary to enter into this distinction: but, in considering the affections of the functions of the brain, I shall confine myself to the two first general causes. I abstract, for instance, from the syncope, which happens in consequence of several powers acting directly on the heart, with all the appearance of apoplexy, or sopor, if you will. In some cases the distinction may be difficult. Sauvages has given a genus under the title of Asphyxia, most of the species of which I have referred to Apoplexia: that is, I suppose them to depend on a cause which acts upon the nervous fluid or power, or upon the state of the brain. But others act more directly on the state of the heart, and induce the same appearance. I abstract from all these in treating of apoplexy. I am sensible that in the character both of the Comata in general, and of Apoplexia in particular, I have not obviated this difficulty: but I trust to this explanation."

MCII. The loss of sense and motion in particular parts of the body, may be occasioned by a compression, either of the origin of certain nerves only, or of the same nerves in some part of their course from the brain to the organs of sense and motion. Such cases of partial compression will be more properly considered hereafter; and the affection I am now to treat of being general, it must depend upon a very general compression of the origin of the nerves, or medullary portion of the brain; and, therefore, this more general compression only is to be considered here.

MCIII. This compression of the origin of the nerves, or medullary portion of the brain, may be produced in different ways, as—

1. By external violence fracturing and pressing in a part of the cranium.

2. By tumours, sometimes soft, sometimes bony, formed in different parts of the brain, or in its membranes, and becoming of such a bulk as to compress the medullary substance of the brain.

3. By the blood accumulated in the blood-vessels of the brain, and distending them to such a degree as to compress the medullary portion of the same.

4. By fluids effused in different parts of the brain, or into the cavity of the cranium, and accumulated in such quantity as to occasion the compression we treat of.

And, as to this last, it is to be remarked here, that the fluids effused may be of two kinds; that is, they may be either a portion of the common mass of blood, poured out from red vessels, or a portion of serum or colourless fluid, poured out chiefly by exhalents.

MCIV. Of these several causes of compression, the first is not to be considered here, because the removing it does not belong to our province; and the consideration of the second may be omitted, as in most instances it is neither to be discerned nor cured by any means yet known. The third and fourth causes of compression, as they are the most frequent, and are also most properly the subjects of our art, so they are those which deserve our particular attention; and we shall therefore endeavour to trace them further back in the series of causes which may produce them.

MCV. Both the states of over-distention and of effusion may be produced by whatever increases the afflux and impetus of the blood in the arteries of the head; such as violent exercise, a violent fit of anger, external heat applied, or any strong pressure upon the descending aorta.

MCVI. But both these states of over-distention and of effusion, may also, and seem to be more frequently produced by causes that operate by preventing the free return of the venous blood from the vessels of the head to the right ventricle of the heart.

MCVII. The venous vessels of the brain are of a conformation and distribution so peculiar, as to lead us to believe, that nature intended to retard the motion of the blood, and accumulate it in these vessels; and, therefore, even very small additional resistances to the motion of the blood from these toward the right ventricle of the heart, may still more readily accumulate the blood in them. Such accumulation will most readily happen in advanced life, when the venous system in general is in a plethoric state, and when this plethora takes place especially in the venous vessels of the brain. It will, in like manner, be most apt to occur in persons whose heads are large with respect to the rest of the body; and in persons of a short neck, which is unfavourable to the return of the venous blood from the head. The accumulation of blood in the venous vessels of the brain will also be most likely to occur in persons of a corpulent habit, either because these may be considered to be in a plethoric state, or because obesity, by occasioning a compression of the blood-vessels in other parts of the body, more readily fills those of the brain, which are entirely free from any such compression.

MCVIII. These are the circumstances in the constitution of the body, which, producing a slower motion and return of the venous blood from the vessels of the head, favour an accumulation and distention in them; and we now proceed to mention the several occasional causes, which, in every person, may directly prevent the free return of the blood from the vessels of the head towards the heart. Such are—

1. Stooping down with the head, or other situations of the body in which the head is long kept in a depending state, and in which the gravity of the blood increases the afflux of it by the arteries, and opposes the return of it by the veins.—"I had occasion to observe this very distinctly in a patient whom I had, labouring under some hydropic symptoms; and in whom a steatomatous tumour pressed upon the branches of the aorta, with constant flushing of the face, and other marks of fulness. In several instances, stooping but for a little, brought on a short apoplectic fit; nay, he showed this in the way of experiment."

2. A tight ligature about the neck, which compresses the veins more strongly than the arteries.

3. Any obstruction of a considerable number of the veins carrying the blood from the head, and more especially any considerable obstruction of the ascending vena cava.

4. Any considerable impediment of the free passage of the blood from the veins into the right ventricle of the heart; and it is commonly by this, and the immediately preceding circumstance, that polypous concretions in the cava, or right ventricle, are found to occasion apoplexy.

5. The return of blood from the veins of the head towards the heart, is especially interrupted by every circumstance that produces a more difficult transmission of the blood through the vessels of the lungs. It is well known, that, at the end of every expiration, some interruption is given to the free transmission of the blood through the lungs; and that this at the same time

gives an interruption to the motion of the blood from the veins into the right ventricle of the heart. This clearly appears from that regurgitation of the blood in the veins which occasions the alternate heaving and subsiding that is perceived in the brain of living animals when the cranium is removed, and which is observed to be synchronous with the alternate motions of respiration. From this, we readily perceive, that whatever occasions a difficulty in the transmission of the blood through the lungs, must also interrupt the free return of the venous blood from the vessels of the head, and must therefore favour, and perhaps produce, an accumulation of blood, and an over-distention in these vessels.

It is further to be observed, that, as a very full inspiration, continued for any length of time, occasions such an interruption of the free transmission of the blood through the lungs, as produces a suffusion of face, and a manifest turgescence of the blood-vessels of the head and neck; so every full and long-continued inspiration may occasion an accumulation of blood in the vessels of the head, to a very considerable degree. Thus, as every strong exertion of the muscular force of the body requires, and is attended with a very full and long-continued inspiration, we thence learn why the violent exertions of muscular force have been so often the immediate or exciting causes of apoplexy.

It may also be remarked, that corpulency and obesity seem to operate very much, by occasioning a more difficult transmission of the blood through the vessels of the lungs. It appears that, in fat persons, from the compression of the blood-vessels in many parts of the body, the vessels of the lungs are thereby kept very full; so that, upon the least increase of bodily motion, which sends the blood faster into the lungs, a more frequent and laborious respiration becomes in such persons immediately necessary. This shows, that, in such persons, the blood is not freely transmitted through the lungs; a circumstance which, as in other instances, must give a constant resistance to the return of blood from the vessels of the head, and therefore favour or occasion an accumulation of blood in them.

Is the motion of the blood in the vessels of the head rendered slower by study, care, and anxiety?

MCIX. It is to be observed further, that these several causes (MCV.—MCVIII.) of a preternatural fulness in the blood-vessels of the brain, may produce apoplexy in different ways, according as the fulness takes place in the arteries or in the veins.

MCX. Accordingly, *first*, The increased afflux of blood into the arteries of the brain, and an increased action in these, may either occasion a rupture of their extremities, and thereby an effusion of red blood producing compression; or the same afflux and increased action may occasion an increased exhalation from their extremities, of a serous fluid, which, if not as quickly re-absorbed, may soon accumulate in such a quantity as to produce compression.

MCXI. *Secondly*, The plethoric state of the venous vessels of the brain may operate in three different ways.

1. The fulness of the veins may give such resistance to the blood flowing into them from the arteries, as to determine the impetus of the blood to be so much greater upon the extremities of the arteries as to occasion a rupture of these, and consequently an effusion of red blood, or the *Hæmorrhagia cerebri*, which Hoffmann considers as a frequent cause of apoplexy, and which we have before explained in DCCLXXII.

2. Whilst the same resistance to the blood flowing from the arteries into the veins increases the impetus of the blood in the former, this may, without occasioning rupture, increase the exhalation from their exhalent extremities, and produce an effusion of a serous fluid; in the same manner, as such resistance in the veins produces hydropic effusions in other parts of the body.

3. If we may suppose, as no lymphatics have been yet discovered in the brain, that the ordinary absorbents are not present there, and that the exhaled fluids are absorbed or taken up by the extremities of the veins; this will show still more clearly that a resistance to the motion of the blood in the veins of the brain may readily produce an accumulation of serous fluid in its cavities, and consequently a compression producing apoplexy.

MCXII. Besides these cases of apoplexy from afflux in th arteries, or resistance in the veins, an effusion of serum ma happen from two other causes. The one is a relaxation of th exhalents, as in other cases of hydropic diathesis prevailing in the body; and it is not unusual for a general dropsy to end in apoplexy. The second is an over-proportion of watery parts in the mass of blood, which is therefore ready to run off by the exhalents, as in the case of an Ischuria renalis; which, when it proves incurable, very commonly terminates in apoplexy.

"The cranium is very accurately fitted to its contents: and any turgescence must certainly be limited by it: if the blood-vessels therefore are upon any occasion preternaturally distended, they must occupy the place allotted to them and to the medullary substance. I would therefore not consider the state as a compression on the origin of the nerves, but rather as a general dilatation of the whole cortical substance, and of the vessels interposed in it, operating by a compression on the whole medullary substance."

MCXIII. We have now mentioned the several causes of apoplexy depending upon compression; and from the whole it will appear that the most frequent of all these causes is a plethoric state, or an accumulation and congestion of blood in the venous vessels of the head, operating, according to its degree, in producing over-distention or effusion. The frequent operation of such a cause will especially appear from a consideration of the predisponent circumstances (MXCV.), and from the antecedent symptoms (MXCVI.).

MXIV. From the view I have now given of the causes of apoplexy arising from compression, it will readily appear that there is a foundation for the common distinction of this disease into the two kinds of Sanguine and Serous. But this distinction cannot be very usefully applied in practice, as both kinds may often depend on the same cause, that is, a venous plethora, and therefore requiring very nearly the same method of cure. The only distinction that can be properly made of apoplexies from compression, is perhaps the distinction of serous apoplexy, into that depending on the plethora mentioned MCXIII., and that depending on hydropic diathesis, or an over-proportion of water in the blood (MCXII.); the former causes giving a proper idiopathic, the latter only a symptomatic disease.

MCXV. Besides the causes now mentioned, occasioning apoplexy by compression, I allege there are other causes producing the same disease, by directly destroying the mobility of the nervous power. Such causes seem to be the mephitic air, arising from fermenting liquors, and from many other sources; the fumes rising from burning charcoal; the fumes of mercury, of lead, and of some other metallic substances; opium, alcohol, and many other narcotic poisons: to all which I would add the power of cold, of concussion, of electricity, and of certain passions of the mind.

MCXVI. None of these poisons or noxious powers seem to kill by acting first upon the organs of respiration, or upon the sanguiferous system; and I believe their immediate and direct action to be upon the nervous power, destroying its mobility, because the same poisons show their power in destroying the irritability of muscles and of the nerves connected with them, when both these are entirely separated from the rest of the body.

MCXVII. It appears to me probable, that the apoplectic state in some degree accompanying, and almost always succeeding, an epileptic paroxysm, does not depend upon compression, but upon a certain state of immobility of the nervous power, produced by certain circumstances in the nervous system itself, which sometimes seem to be communicated from one part of the body to another, and at length to the brain.

"I have mentioned, as a cause of compression, certain tumours within the cranium, sometimes of different kinds. But in many cases where such tumours have been attended with apoplexy and palsy, they are not of such a size as to allow us to think that they were the cause of any general compression of the brain. If I remember right, Morgagni gives cases of apoplexy and palsy, where seemingly the whole cause of compression was not above two spoonfuls of blood effused. In such cases it is difficult to understand how any general compression of the brain can be produced; or how the origin of the nerves can be any way affected. Now, I think that in such cases we must suspect that a partial compression is sufficient to produce a pretty general collapse over the whole medullary substance."

MCXVIII. The same observation may be made with respect to many instances of hysteric paroxysm; and the circumstances both of epileptic and hysteric paroxysms, ending in coma, or a degree of apoplexy, lead me to think, that also the apoplexy proceeding from retrocedent or atonic gout is of the same kind, or that it depends upon an immobility of the nervous power, rather than upon compression.

MCXIX. It may indeed happen, that, as the apoplectic and gouty predispositions do often concur in the same person; so it may consequently happen, that the apoplexy coming upon gouty persons may sometimes depend upon compression; and dissections may, accordingly, discover, that the circumstances of such a cause had preceded. But in many cases of apoplexy following a retrocedent or atonic gout, no such antecedent or concomitant circumstances, as commonly occur in cases of compression, do distinctly or clearly appear; while others present themselves, which point out an affection of the nervous power alone.

MCXX. With respect, however, to the circumstances which may appear upon the dissection of persons dead of apoplexy, there may be some fallacy in judging, from those circumstances, of the cause of the disease. Whatever takes off or diminishes the mobility of the nervous power, may very much retard the motion of the blood in the vessels of the brain; and that perhaps to the degree of increasing exhalation, or even of occasioning rupture and effusion: so that, in such cases, the marks of compression may appear upon dissection, though the disease had truly depended on causes destroying the mobility of the nervous power. This seems to be illustrated and confirmed from what occurs in many cases of epilepsy. In some of these, after a repetition of fits, recovered from in the usual manner, a fatuity is induced, which commonly depends upon a watery inundation of the brain: And, in other cases of epilepsy, when fits have been often repeated without any permanent consequence, there happens at length a fatal paroxysm; and, upon dissection, it appears that an effusion of blood had happened. This, I think, is to be considered as a cause of death, not as a cause of the disease: for in such cases, I suppose that the disease had diminished the action of the vessels of the brain, and thereby given occasion to a stagnation, which produced the appearances mentioned. And I apprehend the same reasoning will apply to the cases of retrocedent gout, which, by destroying the energy of the brain, may occasion such a stagnation as will produce rupture, effusion, and death: and, in such a case, the appearances upon dissection might lead us to think that the apoplexy had depended entirely upon compression.

MCXXI. The several causes mentioned in MCXV. are often of such power as to occasion immediate death; and therefore have not commonly been taken notice of as affording instances of apoplexy; but, as the operation of the whole of these causes is similar and analogous, and as, in most instances of the operation of these causes, an apopletic state is manifestly produced, there can be little doubt in considering most of the instances of their effects as cases of apoplexy, and therefore such as fall properly under our consideration here.

MCXXII. This disease of apoplexy is sometimes entirely recovered from, but more frequently it ends in death, or in a hemiplegia. Even when an attack of the disease is recovered from, we generally find it disposed to return; and the repeated attacks of it almost always, sooner or later, bring on the events we have mentioned.

MCXXIII. The several events of this disease in health, death, or another disease, may be expected and foreseen from a consideration of the predisponent circumstances (MXCV.); of the antecedent symptoms (MXCVI.); of the exciting cases (MXCVIII.); of the violence and degree of the symptoms when the disease has come on (MXCIV.); of the duration of the disease; and of the effects of the remedies employed.

MCXXIV. From the great danger attending this disease when it has come on (MCXXII.), it will readily appear that our care should be chiefly directed to the prevention of it. This, I think, may be often done by avoiding the remote and exciting causes; and how this may be accomplished, will be obvious from the enumeration of those causes given above (MXCVIII.). But it will also appear from what is said above, that the prevention of this disease will especially depend upon obviating the predisponent cause, which, in most cases, seems to be a plethoric state of the blood-vessels of the brain. This, I think, may be obviated by different means; and, in the first place, by a proper management of exercise and diet.

MCXXV. The exercise ought to be such as may support the perspiration, without heating the body or hurrying respiration; and, therefore, commonly by some mode of gestation. In persons not liable to frequent fits of giddiness, and who are accustomed to riding on horseback, this exercise is, of all others, the best. Walking, and some other modes of bodily exercise, may be employed with the restrictions just now mentioned; but in old men, and in men of corpulent habits, bodily exercise ought always to be very moderate.

MCXXVI. In persons who pretty early in life show the predisposition to apoplexy, it is probable that a low diet, with a good deal of exercise, might entirely prevent the disease; but, in persons who are advanced in life before they think of taking precautions, and are at the same time of a corpulent habit, which generally supposes their having been accustomed to full living, it might not be safe to put them upon a low diet: and it may be enough that their diet be rendered more moderate than usual, especially with respect to animal food; and that, at supper, such food should be abstained from altogether.

In drinking, all heating liquors are to be abstained from, as much as former habits will allow; and the smallest approach to intoxication is to be carefully shunned. For ordinary draught, small beer is to be preferred to plain water, as the latter is more ready to occasion costiveness, which, in apopletic habits, is to be carefully avoided. The large use of tobacco in any shape may be hurtful; and, except in cases where it has been accustomed to occasion a copious excretion from the head, the interruption of which might not be safe, the use of tobacco should be avoided; and, even in the circumstances mentioned, where it may be in some measure necessary, the use of it should at least be rendered as moderate as possible.

MCXXVII. Evacuations by stool may certainly contribute to relieve the plethoric state of the vessels of the head; and, upon an appearance of any unusual turgescence in these, purging will be very properly employed: but, when no such turgescence appears, the frequent repetition of large purging might weaken the body too much: and, for preventing apoplexy, it may for the most part be enough to keep the belly regular, and rather open, by gentle laxatives. In the summer season, it may be useful to drink, every morning, of a gentle laxative mineral water, but never in large quantity.

MCXXVIII. In the case of a plethoric state of the system, it might be supposed that blood-letting would be the most effectual means of diminishing the plethora, and of preventing its consequences: and, when an attack of apoplexy is immediately threatened, blood-letting is certainly the remedy to be depended upon; and blood should be taken largely, if it can be done, from the jugular vein, or temporal artery. But when no threatening turgescence appears, the obviating plethora is not judiciously attempted by blood-letting, as we have endeavoured to demonstrate above (DCCLXXXVII.). In doubtful circumstances, leeches applied to the temples, or scarifications of the hind-head, may be more safe than general bleedings.

MCXXIX. When there are manifest symptoms of a plethoric state in the vessels of the head, a seton, or pea-issue, near the head, may be very useful in obviating any turgescence of the blood.

MCXXX. These are the means to be employed for preventing the apoplexy which might arise from a plethoric state of the vessels of the brain; and if, at the same time, great care is taken to avoid the exciting causes (MXCVIII.) these means will be generally successful.

In the cases proceeding from other causes (MCXV.), as their application is so immediately succeeded by the disease, they hardly allow any opportunity for prevention.

MCXXXI. For the Cure of apoplexies from internal causes, and which I suppose to be chiefly those from compression, the usual violence and fatality of it require that the proper remedies be immediately and largely employed.

The patient is to be kept as much as possible in somewhat of an erect posture, and in cool air; and, therefore, neither in a warm chamber, nor covered with bed-clothes, nor surrounded with a crowd of people.

MCXXXII. In all cases of a full habit, and where the disease has been preceded by marks of a plethoric state, blood-letting is to be immediately employed, and very largely. In my opinion, it will be most effectual when the blood is taken from the jugular vein; but, if that cannot be properly done, it may be taken from the arm. The opening of the temporal artery, when a large branch can be opened, so as suddenly to pour out a considerable quantity of blood, may also be an effectual remedy; but, in execution, it is more uncertain, and may be inconvenient. It may be in some measure supplied, by cupping and scarifying on the temples or hind-head. This, indeed, should seldom be omitted; and these scarifications are always preferable to the application of leeches.

With respect to every mode of blood-letting, this is to be observed, that when, in any case of apoplexy, it can be perceived that one side of the body is more affected with the loss of motion than the other, the blood-letting, if possible, should be made on the side opposite to that most affected.

DCXXXIII. Another remedy to be employed is purging, to be immediately attempted by acrid glysters; and, at the same time, if any power of swallowing remain, by drastic purgatives given by the mouth. These, however, lest they may excite vomiting, should be given in divided portions, at proper intervals.

MCXXXIV. Vomiting has been commended by some practitioners and writers: but, apprehending that this might impel the blood with too much violence into the vessels of the head, I have never employed it.

MCXXXV. Another remedy to be immediately employed is blistering; and I judge that this is more effectual when applied to the head, or near to it, than when it is applied to the lower extremities. This remedy I do not consider as a stimulant, or capable of making any considerable revulsion: but, applied to the head, I suppose it useful in taking off the hæmorrhagic disposition so often prevailing there.

" I have said that the accumulation, upon which the compression depends, may be of two kinds, hæmorrhagic or hydropic. Now here there must be different managements. Nothing is more obvious than that blood-letting, on which we chiefly depend in the case of hæmorrhagic, may be truly pernicious in the case of hydropic apoplexy, which generally arises from a loss of tone in the whole system, and particularly in the exhalents, depending upon an abundance of serum in the sanguiferous system."

MCXXXVI. It has been usual with practitioners, together with the remedies already mentioned, to employ stimulants of various kinds; but I am disposed to think them generally hurtful; and they must be so, wherever the fulness of the vessels, and the impetus of the blood in these, is to be diminished. Upon this principle it is therefore agreed, that stimulants are absolutely improper in what is supposed to be a sanguine apoplexy; but they are commonly supposed to be proper in the serous. If, however, we be right in alleging that this also commonly depends upon a plethoric state of the blood-vessels of the brain, stimulants must be equally improper in the one case as in the other.

MCXXXVII. It may be argued, from the almost universal employment of stimulants, and sometimes with seeming advantage, that they may not be so hurtful as my notions of the causes of apoplexy lead me to suppose. But this argument is, in several respects, fallacious; and particularly in this, that, in a disease which, under every management, often proceeds so quickly to a fatal termination, the effects of remedies are not to be easily ascertained.

MCXXXVIII. I have now mentioned the several remedies which I think adapted to the cure of apoplexy arising from compression, and should next proceed to treat of the cure of apoplexy arising from those causes that directly destroy the mobility of the nervous power. But many of those causes are often so powerful, and thereby so suddenly fatal in their effects, as hardly to allow of time for the use of remedies; and such cases, therefore, have been so seldom the subjects of practice, that the proper remedies are not so well ascertained as to enable me to say much of them here.

MCXXXIX. When, however, the application of the causes (MCXV.) is not so powerful as immediately to kill, and induces only an apoplectic state, some efforts are to be made to obviate the consequences, and to recover the patient: and, even in some cases where the causes referred to, from the ceasing of the pulse and of respiration, and from a coldness coming upon the body, have induced an appearance of death; yet, if these appearances have not continued long, there may be means of recovering the persons to life and health. I cannot, indeed, treat this subject completely; but, for the cure of apoplexy from several of the causes mentioned MCXV., shall offer the following general directions.

1. When a poison capable of producing apoplexy has been recently taken into the stomach, if a vomiting spontaneously arises, it is to be encouraged; or, if it does not spontaneously come on, a vomiting is to be immediately excited by art, in order that the poison may be thrown out as quickly as possible. If, however, the poison has been taken into the stomach long before its effects have appeared, we judge that, upon their appearance, the exciting of vomiting will be useless, and may perhaps be hurtful.

2. When the poison taken into the stomach, or otherwise applied to the body, has already induced an apoplectic state, as those causes do commonly at the same time occasion a stagnation or slower motion of the blood in the vessels of the brain and of the lungs, so it will generally be proper to relieve this congestion by taking some blood from the jugular vein, or from the veins of the arm.

3. Upon the same supposition of a congestion in the brain or lungs, it will generally be proper to relieve it by means of acrid glysters producing some evacuation from the intestines.

4. When these evacuations by blood-letting and purging have been made, the various stimulants which have been commonly proposed in other cases of apoplexy may be employed here with more probability and safety. One of the most effectual means of rousing apoplectics of this kind, seems to be throwing cold water on several parts of the body, or washing the body all over with it.

5. Although the poison producing apoplexy happens to be so powerful as very soon to occasion the appearances of death above mentioned, yet if this state has not continued long, the patient may often be recoverable; and the recovery is to be attempted by the same means that are directed to be employed for the recovery of drowned persons, and which are now commonly known.

CHAP. II.—OF PALSY.

MCXL. Palsy is a disease consisting in a loss of the power of voluntary motion, by affecting certain parts of the body only, and by this it is distinguished from apoplexy (MXCIV.). One of the most frequent forms of palsy is when it affects the whole of the muscles on one side of the body; and then the disease is named a *Hemiplegia.*

MCXLI. The loss of the power of voluntary motion may be owing either to a morbid affection of the muscles or organs of motion, by which they are rendered unfit for motion, or to an interruption of the influx of the nervous power into them, which is always necessary to the motions of those that are under the power of the will. The disease, from the first of these causes, as consisting in an organic and local affection, we refer entirely to the class of local diseases. I am here to consider that disease only which depends upon the interrupted influx of the nervous power; and it is to this disease alone I would give the appellation of *Palsy.* A disease depending on an interrupted influx of the nervous power, may indeed often appear as merely a local affection; but as it depends on an affection of the most general powers of the system, it cannot be properly separated from the systematic affections.

MCXLII. In palsy, the loss of motion is often accompanied with a loss of sense; but as this is not constantly the case, and as therefore the loss of sense is not an essential symptom of palsy, I have not taken it into my definition (MCXL.); and I shall not think it necessary to take any further notice of it in this treatise; because, in so far as it is in any case a part of the paralytic affection, it must depend upon the same causes, and will be cured also by the very same remedies as the loss of motion.

"When there is a loss of sense without loss of motion, physicians have been puzzled whether to call it palsy or not: but I say it is a different disease, and should be known by another name, such as *Anæsthesia.* A curious case of this occurred to me. A gentleman was affected with a hemiplegia, which appeared most considerable in one arm; at the same time, the sense remained entire in that arm, and the state of the circulation continued as natural. With this he had an affection of the arm of the other side, which was a total loss of sense with a perfectly entire motion: it was attended with another circumstance, viz. a cessation of the circulation in that arm which had lost the sense. It appeared to me, that the two symptoms, of loss of sense and loss of motion, depended upon quite different causes."

MCXLIII. The palsy, then, or loss of motion, which is to be treated of here, may be distinguished as of two kinds; one of them depending upon an affection of the origin of the nerves in the brain, and the other depending upon an affection of the nerves in some part of their course between the brain and the organs of motion. Of the latter, as appearing in a very partial affection, I am not to speak particularly here; I shall only treat of the more general paralytic affections, and especially of the hemiplegia (MCXL.). At the same time, I expect that what I shall say upon this subject will readily apply to both the pathology and practice in the cases of affections more limited.

MCXLIV. The hemiplegia (MCXL.) usually begins with, or follows a paroxysm of apoplexy; and when the hemiplegia, after subsisting for some time, becomes fatal, it is commonly by passing again into the state of apoplexy. The relaxation, therefore, or affinity between the two diseases, is sufficiently evident; and is further strongly confirmed by this, that the hemiplegia comes upon persons of the same constitution (MXCV.), and is preceded by the same symptoms (MXCVIII.) that have been taken notice of with respect to apoplexy.

MCXLV. When a fit of apoplexy has gone off; and there remains a state of palsy appearing as a partial affection only, it might perhaps be supposed that the origin of the nerves is in a great measure relieved; but in so far as commonly there still remain the symptoms of the loss of memory, and of some degree of fatuity, these, I think, show, that the organ of intellect, or the common origin of the nerves, is still considerably affected.

MCXLVI. Thus, the hemiplegia, from its evident connexion with, and near relation to, apoplexy, may be properly considered as depending upon like causes; and, consequently, either upon a compression preventing the flow of the nervous power from the brain into the organs of motion, or upon the application of narcotic or other powers (MCXV.), rendering the nervous power unfit to flow in the usual and proper manner.

"I have endeavoured to establish that there are two kinds of palsy, one from compression, the other from collapse, which it is absolutely necessary to distinguish, because the remedies to be applied are often of an opposite nature. I have not been able in a number of cases to satisfy myself, whether to consider them as of one kind or as of the other: but I propose to give you the following considerations, which may often assist in distinguishing a palsy from collapse.

"1. We are more inclined to admit the supposition of collapse, when there are no symptoms of previous plethora, when the disease happens at a time of life when neither arterial nor venous plethora is to be suspected, or in a temperament not disposed to that state, where there is neither short neck, large head, nor obesity, nor suppression of usual evacuations. Still from the absence of these symptoms we cannot conclude that it is not a case of compression; for it may arise from tumours in the cranium without any signs of plethora. The only means of judging which we have in such cases, is observing the effects which these tumours generally have before they produce apoplexy and palsy, such as vertigo epilepsy, or maniacal symptoms, and partial topical palsies, before the more general affection comes on.

"2. In order to exclude compression, there must be an entire absence of the hydropic diathesis; for where that is present, where we see anasarca of the lower extremities, or symptoms of ascites or hydrothorax, and at the same time symptoms of palsy, we presume pretty confidently, that the latter arises from a similar affusion into the brain.

"3. Even where plethoric symptoms and marks of congestion have preceded the disease, if the latter has existed for a great length of time, there is a suspicion that the compression which existed at first, has induced a collapse. Certainly plethoric congestions, and still more causes of effusion, may subsist for a length of time; but I think the congestions cannot do so without shewing a considerable change and vicissitude in the appearance of the disease; and serous effusions also must either go on constantly increasing, or be absorbed, so as to give relief to the symptoms. I have had frequent occasion to make this observation; in cases of hydropic diathesis, where I had no doubt that the symptoms in the head proceeded from effusion there, I have seen, that effusion and absorption distinctly alternate with the state of the lower extremities and thorax. The probability, therefore, is, that a case of subsisting effusion will be distinguished by this vicissitude of symptoms. So it is probable also that when the palsy depends upon a plethoric state in the whole or a part of the system, it will suffer some variation according to the state of the evacuations, the passions of the mind, the temperature of the air, &c. The same may indeed happen in pure collapse, the cause and nature of which we know less clearly: but it will not be so certain as where we can readily perceive and trace the causes. I am ready therefore, to say—

"4. That a durable palsy, especially one which, without being to the most violent degree and with very little change, especially affects the sensorium, is to be suspected of being a case of collapse. With regard to the symptoms of affection of the sensorium, we must consider, however, that when the disease has most distinctly begun by compression, it is commonly at the same time accompanied with considerable lowness of the intellectual faculties: Now, I say, that when the palsy has begun in this way, there is a gradual restoration of the intellectual faculties: and I presume that when the case subsists, it is by the power of collapse.

"5. When palsy follows apoplexy, the presumption is in general in favour of compression: but the conclusion must not be considered as absolute, for I think I have proved that there are many apoplexies from collapse; and,

"6. We conclude most certainly, that either apoplexy or palsy depend upon collapse, when the causes evidently are of that kind. Thus, when a gilder is affected with palsy, which we impute to the fumes of mercury, and when painters and others who have been exposed to the fumes of lead, have palsy, it is probably from collapse: when apoplexy or palsy arises from the damp of mines, or from the confined fumes of charcoal, I have no doubt in considering it as depending purely on collapse."

MCXLVII. We begin with considering the cases depending upon compression.

The compression occasioning hemiplegia may be of the same kind, and of all the different kinds that produce apoplexy; and, therefore, either from tumour, over-distention, or effusion. The existence of tumour giving compression may often be better discerned in the case of palsy than in that of apoplexy, as its effects often appear at first in a very partial affection.

MCXLVIII. The other modes of compression, that is, of over-distention and effusion, may, and commonly do, take place in hemiplegia; and, when they do, their operation here differs from that producing apoplexy, by its effects being partial, and on one side of the body only.

It may seem difficult to conceive that an over-distention can take place in the vessels on one side of the brain only; but it may be understood: and, in the case of a palsy which is both partial and transitory, it is perhaps the only condition of the vessels of the brain that can be supposed. In a hemiplegia, indeed, which subsists for any length of time, there is probably always an effusion, either sanguine or serous: but it is likely that even the latter must be supported by a remaining congestion in the blood-vessels.

MCXLIX. That a sanguine effusion can happen without becoming very soon general, and thereby occasioning apoplexy and death, may also seem doubtful. But dissections prove, that in fact, it does happen, occasioning palsy only; though it is true, that this more commonly depends upon an effusion of serous fluid, and of this only.

MCL. Can a palsy occasioned by a compression remain, though the compression be removed?

" The prognosis of palsy depends on the part affected, viz. the brain, medulla spinalis, or particular nerves: for these are of different use in the system, that is more or less universal and necessary.

" The intellectual powers are particularly connected with the brain, so that this organ is of the greatest importance; and hence, all palsies that arise from the brain are of greater danger and more difficult cure than those which arise from the medulla spinalis: but palsies arising from the brain are less common than those from the medulla spinalis. When palsy is attended with disorder of the intellectual powers, or of those senses which depend on the brain, viz. sight, smell, taste, and hearing (for touch, I imagine, may be produced by nerves arising from any part of the body, certainly it may from nerves arising from the medulla spinalis), then I say the prognosis is unfavourable.

"Haller has observed, that sense requires less force in the impelling powers than motion does: hence we may consider these palsies as less dangerous when motion is lost than when sense is.*

"The loss of heat in a part, I consider as a more dangerous symptom than that of sense; for as the heat depends on a motion of the heart, &c. it is a proof that the heart and arteries do not receive the nervous power more than the muscles affected; and consequently the disease is more universal. But as every body does not admit that the nervous influence is the cause of the contraction of the heart and arteries; and some suppose with Haller, a *vis insita contractilis;* to such this prognostic sign will appear unjust; but, however, experience confirms it. And even on their doctrine it may be owing to the loss of motion in the affected muscle, which therefore does not assist to propel the blood with sufficient force to the heart, so that thereby the circulation is rendered languid, and the disease more dangerous.

"It is for the same reason that the loss of nourishment and the decay of the part affords an unfavourable prognosis.

"When the muscles continue contracted I consider it as favourable, because it is a proof that they still retain some degree of irritability.

"In general I would form a more favourable prognosis when the nerves are permeable. And here we may observe, that medicines which have no effect when applied to the hand, yet stimulate often farther up, as does also electricity."

MCLI. From what has been said MCXLIV., it will be obvious that the hemiplegia may be prevented by all the several means proposed (MCXXV. *et seq.*) for the prevention of apoplexy.

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* It is surprising that, when the nerves that go off together in a bundle from the sensorium are the cause of both sensation and motion in a muscle, yet the one should be destroyed and the other remain entire; this affords a proof that these nerves are distinct even in the sensorium.—See *Clinical Lectures* by Dr. W. Cullen, Lond. 1797, p. 194.

MCLII. Upon the same grounds, the Cure of palsy must be very much the same with that of apoplexy (MCXXX. *et seq.*); and, when palsy has begun as an apoplexy, it is presumed, that, before it is to be considered as palsy, all those several remedies have been employed. Indeed, even when it happens, that, on the first attack of the disease, the apoplectic state is not very complete, and that the very first appearance of the disease is as a hemiplegia, the affinity between the two diseases (MCXLIV.) is such as to lead to the same remedies in both cases. This is certainly proper in all those cases in which we can with much probability impute the disease to compression; and it is indeed seldom that a hemiplegia from internal causes comes on but with a considerable affection of the internal, and even of the external senses, together with other marks of a compression of the origin of the nerves.

MCLIII. Not only, however, where the disease can be imputed to compression, but even where it can be imputed to the application of narcotic powers, if the disease come on with the appearances mentioned at the end of last paragraph, it is to be treated in the same manner as an apoplexy by MCXXXI. —MCXXXIX.

MCLIV. The cure of hemiplegia, therefore, on its first attack, is the same, or very nearly the same, with that of apoplexy; and it seems requisite that it should be different only,

1. When the disease has subsisted for some time;

2. When the apoplectic symptoms, or those marking a considerable compression of the origin of the nerves are removed; and, particularly,

3. When there are no evident marks of compression, and it is at the same time known that narcotic powers have been applied.

MCLV. In all these cases, the question arises, Whether stimulants may be employed, or how far the cure may be entirely trusted to such remedies? Upon this question, with respect to apoplexy, I have offered my opinion in MCXXXVI. And, with respect to hemiplegia, I am of opinion that stimulants are almost always equally dangerous as in the cases of complete apoplexy; and particularly,

1. In all the cases of hemiplegia succeeding to a paroxysm of complete apoplexy.

2. In all the cases coming upon persons of the temperament mentioned in MXCV., and after the same antecedents as those of apoplexy (MXCVI.); and,

3. In all the cases coming on with symptoms of apoplexy from compression.

MCLVI. It is, therefore, in the cases MCLIV. only, that stimulants are properly admissible. And, even in the two first of these cases, in which a plethoric state of the blood-vessels of the brain may have brought on the disease, in which a disposition to that state may still continue, and in which even some degree of congestion may still remain, the use of stimulants must be an ambiguous remedy; so that perhaps it is in the third of these cases only that stimulants are clearly indicated and admissible.

MCLVII. These doubts with respect to the use of stimulants, may perhaps be overlooked or disregarded by those who allege that stimulants have been employed with advantage even in those cases (MCLV.), in which I have said they ought to be avoided.

MCLVIII. To compromise this contrariety of opinion, I must observe, that even in the cases of hemiplegia depending upon compression, although the origin of the nerves be so much compressed as to prevent so full a flow of the nervous power as is necessary to muscular motion, yet it appears from the power of sense still remaining, that the nerves are, to a certain degree, still pervious; and, therefore, it is possible that stimulants applied, may excite the energy of the brain so much, as in some measure to force open the compressed nerves, and to show some return of motion in paralytic muscles. Nay, further, it may be allowed, that, if these stimulants be such as act more upon the nervous than upon the sanguiferous system, they may possibly be employed without any very hurtful consequence.

MCLIX. But still it will be obvious, that, although certain stimulants act chiefly upon the nervous system, yet they also act always in some measure upon the sanguiferous; so that, when they happen to have the latter effect in any considerable degree, they may certainly do much harm; and in a disease which they do not entirely cure, the mischief arising from them may not be discerned.

MCLX. Whilst the employment of stimulants is so often an ambiguous practice, we may perhaps go some length towards ascertaining the matter, by considering the nature of the several stimulants which may be employed, and some of the circumstances of their administration. With this view, therefore, I shall now mention the several stimulants that have been commonly employed, and offer some remarks upon their nature and use.

MCLXI. They are in the first place to be distinguished as external or internal.—"It is doubtful to which of these the passions are to be referred, which have manifest effects in removing this disease. I knew a gentleman affected with palsy, who, when thrown into a passion, could speak pretty distinctly, and even move his paralytic limbs, neither of which he could do at any other time. But this stimulus we have not in our power to apply in practice, both because it is difficult to follow the proper manner of exciting it, and because, if I may use the expression, we cannot ascertain the dose: and contrary to the above-mentioned case, I have known paralytic patients that commonly spoke pretty clearly, by being excited to certain passions, deprived entirely of the use of speech."—Of the first kind, we again distinguish them as they are applied to particular parts of the body only, or as they are more generally applied to the whole system. Of the first kind are,

1. The concentrated acids of vitriol or nitre; involved, however, in oily or unctuous substances, which may obviate their corrosive, without destroying their stimulant power.

2. The volatile alkaline spirits, especially in their caustic state; but involved also in oils for the purpose just now mentioned.

3. The same volatile spirits are frequently employed by being held to the nose, when they prove a powerful stimulus to the nervous system; but it is at the same time probable, that they may also prove a strong stimulant to the blood-vessels of the brain.

4. A brine, or strong solution of sea-salt.

5. The essential oils of aromatic plants, or of their parts.

6. The essential oils of turpentine, or of other such resinous substances.

7. The distilled oils of amber, or of other bituminous fossils.

8. The rectified empyreumatic oils of animal or vegetable substances.

9. Various vegetable acrids, particularly mustard.

10. The acrid matter found in several insects, particularly cantharides.

Some of these stimulants may be either applied in substance, or may be dissolved in ardent spirits, by which their stimulant power may be increased, or more conveniently applied.

MCLXII. The greater part of the substances now enumerated, show their stimulant power by inflaming the skin of the part to which they are applied; and when their application is so long continued as to produce this effect, it interrupts the continuance of their use; and the inflammation of the part does not seem to do so much good as the frequent repetition of a more moderate stimulus.

MCLXIII. Analogous to these stimulants is the stinging of nettles, which has been frequently commended.

Among the external stimulants, the mechanical one of friction with the naked hand, the flesh brush, or flannel, is justly to be reckoned. Can the impregnation of the flannels to be employed, with the fumes of burning mastic, olibanum, &c. be of any service?

MCLXIV. With respect to the whole of these external stimulants, it is to be observed, that they affect the part to which they are applied much more than they do the whole system, and they are therefore indeed safer in ambiguous cases; but, for the same reason, they are of less efficacy in curing a general affection.

MCLXV. The external applications which may be applied to affect the whole system, are the powers of heat and cold, and of electricity.

Heat, as one of the most powerful stimulants of the animal economy, has been often employed in palsies, especially by warm bathing. But as, both by stimulating the solids, and rarefying the fluids, this proves a strong stimulus to the sanguiferous system, it is often an ambiguous remedy; and has frequently been manifestly hurtful in palsies depending upon a congestion of blood in the vessels of the brain. The most certain, and therefore the most proper use of warm bathing in palsies, seems to be in those that have been occasioned by the application of narcotic powers. Are the natural baths more useful by the matters with which they may be naturally impregnated?

"I have known several instances of persons affected with palsy, who, after the symptoms had been very moderate for a considerable time, returned to the apoplectic state in consequence of a single warm bathing; in some instances they died in a few hours afterwards; but more commonly they were thrown into a much more violent disease. I am of opinion, that the very indiscriminate use of hot baths in England in cases of palsy, has been of very bad consequences. It is in many cases doubtful, whether compression or collapse be the cause: but where there is any doubt, we ought to proceed very cautiously and gradually."

MCLXVI. Cold applied to the body for any length of time is always hurtful to paralytic persons; but if it be not very intense, nor the application long continued, and if, at the same time, the body be capable of a brisk reaction, such an application of cold is a powerful stimulant of the whole system, and has often been useful in curing palsy. But, if the power of reaction in the body be weak, any application of cold may prove very hurtful.

MCLXVII. Electricity, in a certain manner applied, is certainly one of the most powerful stimulants that can be employed to act upon the nervous system of animals; and therefore much has been expected from it in the cure of palsy. But, as it stimulates the sanguiferous as well as the nervous system, it has been often hurtful in palsies depending upon a compression of the brain; and especially when it has been so applied as to act upon the vessels of the head. It is safer when its operation is confined to particular parts somewhat remote from the head; and further, as the operation of electricity, when very strong, can destroy the mobility of the nervous power, I am of opinion that it is always to be employed with caution, and that it is only safe when applied with moderate force, and when confined to certain parts of the body, remote from the head. It is also my opinion, that its good effects are to be expected from its repetition rather than from its force, and that it is particularly suited to the cure of those palsies which have been produced by the application of narcotic powers.

MCLXVIII. Amongst the remedies of palsy, the use of exercise is not to be omitted. In a hemiplegia, bodily exercise cannot be employed; and in a more limited affection, if depending upon a compression of some part of the brain, it would be an ambiguous remedy; but in all cases where the exercises of gestation can be employed, they are proper; as, even in cases of compression, the stimulus of such exercise is moderate, and therefore safe; and, as it always determines to the surface of the body, it is a remedy in all cases of internal congestion.

MCLXIX. The internal stimulants employed in palsy are various, but chiefly the following:—

1. The volatile alkaline salts, or spirits, as they are called, are very powerful and diffusive stimulants, operating especially on the nervous system; and even although they operate on the sanguiferous, yet, if given in frequently repeated small rather than in large doses, their operation being transitory, is tolerably safe.

2. The vegetables of the class named Tetradynamia are many of them powerful diffusive stimulants; and at the same time, as quickly passing out of the body, and therefore of transitory operation, they are often employed with safety. As they commonly prove diuretic, they may in this way also be of service in some cases of serous palsy.—"Mustard as well as horseradish may be given in great quantities, in the form of syrup, without producing the smallest inflammatory symptom.—A practice, so far as I can learn, first began in this city about fifty years ago (1739), and has been since very frequent. It consists in giving the mustard seed entire and unbruised, to the quantity of half an ounce, or as much as an ordinary tablespoon will contain. This does not prove heating in the stomach, but stimulates the intestinal canal, and commonly proves laxative, or at least supports the usual daily excretion. It commonly also increases the secretion of urine; but in this I have found it frequently to fail. In giving it twice a-day, as our common practice is, I have not found it to stimulate the system, or to heat the body; but it must certainly have that effect if it answers in the Swedish

practice, by giving it four or five times a-day to prevent the recurrence of intermittent fevers.—*M.M.*

3. The various aromatics, whether employed in substance, in tincture, or in their essential oils, are often powerful stimulants, but being more adhesive and inflammatory than those last mentioned, they are therefore, in all ambiguous cases, less safe.

4. Some other acrid vegetables have been employed; but we are not well acquainted with their peculiar virtues, or proper use.

5. Some resinous substances, as guaiacum, and the terebinthinate substances, or their essential oils, have been, with some probability, employed; but they are apt to become inflammatory. Decoctions of guaiacum, and some other sudorifics, have been directed to excite sweating by the application of the fumes of burning spirit of wine in the laconicum, and have, in that way, been found useful.

6. Many of the fetid antispasmodic medicines have been frequently employed in palsy; but I do not perceive in what manner they are adapted to the cure of this disease, and I have not observed their good effects in any cases of it.—"They have been employed because they are extremely useful in the case of epilepsy and other spasmodic affections; and we are apt to confound the several cephalic diseases — epilepsy with palsy; thus, we employ valerian in palsy, as we do in epilepsy. But their use in palsy is without any foundation in experience that I have had; and I would allege that they are rather sedative than stimulant."

7. Bitters, and the Peruvian bark, have also been employed, but with no propriety or advantage that I can perceive.—"They are not powerful in exciting, although they may be useful in supporting, the tone or full and vigorous excitement of the nervous system. But I before, on the subject of gout, hinted my doubts with regard to the long-continued use of such medicines, which will indeed destroy the tone of the system, which they were intended to support.

"The next internal stimulus which I would mention, is Fever. This is recommended by Dr. Boerhaave, and by his commentator, Van Swieten; and they are not only supported by the evidence of fevers coming accidentally on, but also by theory; for fever, by increasing the heart's contractions, proves a means of conveying heat to the affected parts, and any danger that might arise from the quicker circulation is obviated by the succeeding sweats. But it is not in our power to *excite* a proper fever; for I imagine that authors, when speaking of this, mean nothing more than raising, by stimuli, a velocity of pulse and circulation. And here I must observe, that there are some stimuli that act upon the nervous system without affecting the heart and vessels in any degree; and others that act powerfully on the sanguiferous system without having great influence upon the nervous system. Hence, I would divide stimuli into nervous and inflammatory: these are not, however, quite disjoined—nervous stimuli cannot be long applied without bringing the heart and vessels into consent, and *vice versa.* But, as the effects of the inflammatory are more permanent, and are particularly improper in the case of compression, we should avoid them as much as possible in this disease, and confine ourselves to the nervous."

MCLXX. With respect to the whole of these internal stimulants, it is to be observed, that they seldom prove very powerful; and wherever there is any doubt concerning the nature or state of the disease, they may readily do harm, and are often therefore of ambiguous use.

BOOK II.

OF ADYNAMIÆ; OR DISEASES CONSISTING IN A WEAKNESS OR LOSS OF MOTION IN EITHER THE VITAL OR NATURAL FUNCTIONS.

CHAP. I.—OF SYNCOPE OR FAINTING.

MCLXXI. This is a disease in which the action of the heart and respiration become considerably weaker than usual, or in which, for a certain time, these functions cease altogether.

MCLXXII. Physicians having observed that this affection occurs in different degrees, have endeavoured to distinguish these by different appellations: but, as it is not possible to ascertain these different degrees with any precision, so there can be no strict propriety in employing those different names; and I shall here comprehend the whole of the affections of this kind under the title of Syncope.

MCLXXIII. This disease sometimes comes on suddenly to a considerable degree, but sometimes also it comes on gradually; and, in the latter case, it usually comes on with a sense of languor, and of anxiety about the heart, accompanied at the same time, or immediately after, with some giddiness, dimness of sight, and sounding in the ears. Together with these symptoms, the pulse and respiration become weak; and often so weak, that the pulse is scarcely to be felt, or the respiration to be perceived; and sometimes these motions, for a certain time, cease altogether. While these symptoms take place, the fac and whole surface of the body become pale, and more or less cold, according to the degree and duration of the paroxysm. Very commonly at the beginning of this, and during its continuance, a cold sweat appears, and perhaps continues, on the forehead as well as on some other parts of the body. During the paroxysm, the animal functions, both of sense and motion, are always in some degree impaired, and very often entirely suspended. A paroxysm of syncope is often, after some time, spontaneously recovered from; and this recovery is generally attended with a sense of much anxiety about the heart.

Fits of syncope are frequently attended with, or end in, vomiting; and sometimes with convulsions, or an epileptic fit.

MCLXXIV. These are the phenomena in this disease; and, from every view of the greatest part of them, there cannot be a doubt, that the proximate cause of this disease is a very weak or a total ceasing of the action of the heart. But it will be a very difficult matter to explain in what manner the several remote causes operate in producing the proximate cause. This, however, I shall attempt, though with that diffidence which becomes me in attempting a subject that has not hitherto been treated with much success.

The remote causes of syncope may, in the first place, be referred to two general heads. The one is, of those causes existing and acting in the brain, or in parts of the body remote from the heart, but acting upon it by the intervention of the brain. The other general head of the remote causes of syncope is of those existing in the heart itself, or in parts very immediately connected with it, and thereby acting more directly upon it in producing this disease.

MCLXXV. In entering upon the consideration of the first set of those causes (MCLXXIV.), I must assume a proposition which I suppose to be fully established in Physiology. It is this: That though the muscular fibres of the heart be endowed with a certain degree of inherent power, they are still, for such action as is necessary to the motion of the blood, very constantly dependent upon a nervous power sent into them from the brain. At least this is evident, that there are certain powers acting primarily, and perhaps only in the brain, which influence and variously modify the action of the heart. I suppose, therefore, a force very constantly during life exerted in the brain, with respect to the moving fibres of the heart, as well as of every part of the body; which force I shall call the Energy of the Brain; and which I suppose may be, on different occasions, stronger or weaker with respect to the heart.—"See Vol. I. p. 80."

MCLXXVI. Admitting these propositions, it will be obvious, that, if I can explain in what manner the first set of remote causes (MCLXXIV.) diminish the energy of the brain, I shall at the same time explain in what manner these causes occasion a syncope.

MCLXXVII. To do this, I observe, that one of the most evident of the remote causes of syncope is a hæmorrhagy, or an evacuation of blood, whether spontaneous or artificial. And, as it is very manifest, that the energy of the brain depends upon a certain fulness and tension of its blood-vessels, for which nature seems to have industriously provided by such a conformation of those blood-vessels as retards the motion of the blood both in the arteries and veins of the brain; so we can readily perceive, that evacuations of blood, by taking off the fulness and tension of the blood-vessels of the brain, and thereby diminishing its energy with respect to the heart, may occasion a syncope. In many persons a small evacuation of blood will have this effect; and in such cases there is often a clear proof of the manner in which the cause operates, from this circumstance, that the effect can be prevented by laying the body in a horizontal posture; which, by favouring the afflux of the blood by the arteries, and retarding the return of it by the veins, preserves the necessary fulness of the vessels of the brain.

It is farther to be remarked here, that, not only an evacuation of blood occasions syncope, but that even a change in the distribution of the blood, whereby a larger portion of it flows into one part of the system of blood-vessels, and consequently less into others, may occasion a syncope. It is thus I explain the syncope that readily occurs upon the evacuation of hydropic waters, which had before filled the cavities of the abdomen or thorax. It is thus also I explain the syncope that sometimes happens on blood-letting, but which does not happen till the ligature which had been employed is untied, and admits a larger afflux of blood into the blood-vessels of the arm. Both these cases of syncope show that an evacuation of blood does not always occasion the disease by any general effect on the whole system, but often merely by taking off the requisite fullness of the blood-vessels of the brain.

MCLXXVIII. The operation of some others of the remote causes of syncope may be explained on the following principles. Whilst the energy of the brain is, upon different occasions, manifestly stronger or weaker, it seems to be with this condition, that a stronger exertion of it is necessarily followed by a weaker state of the same. It seems to depend upon this law in the constitution of the nervous power, that the ordinary contraction of a muscle is always alternated with a relaxation of the same; that, unless a contraction proceeds to the degree of spasm, the contracted state cannot be long continued: and it seems to depend upon the same cause that the voluntary motions, which always require an unusual increase of exertion, occasion fatigue, debility, and at length irresistible sleep.

From this law, therefore, of the nervous power, we may understand why a sudden and violent exertion of the energy of the brain is sometimes followed by such a diminution of it as to occasion a syncope; and it is thus, I suppose, that a violent fit of joy produces syncope, and even death. It is upon the same principle also, I suppose, that an exquisite pain may sometimes excite the energy of the brain more strongly than can be supported, and is therefore followed by such a diminution as must occasion fainting. But the effect of this principle appears more clearly in this, that a fainting readily happens upon the sudden remission of a considerable pain; and thus I have seen a fainting occur upon the reduction of a painful dislocation.

MCLXXIX. It seems to be quite analogous when a syncope immediately happens on the finishing of any great and long-continued effort, whether depending on the will, or upon a propensity; and, in this way, a fainting sometimes happens to a woman on the bearing of a child. This may be well illustrated by observing, that, in persons already much weakened, even a very moderate effort will sometimes occasion fainting.

MCLXXX. To explain the operation of some other causes of syncope, it may be observed, that, as the exertions of the energy of the brain are especially under the influence of the will, so it is well known that those modifications of the will which are named Passions and Emotions, have a powerful influence on the energy of the brain in its actions upon the heart, either in increasing or diminishing the force of that energy. Thus, anger has the former, and fear the latter effect; and thence it may be understood how terror often occasions a syncope sometimes of the most violent kind, named Asphyxia, and sometimes death itself.

MCLXXXI. As, from what I have just mentioned, it appears that the emotions of desire increase, and those of aversion diminish the energy of the brain; so it may be understood how a strong aversion, a horror, or the feeling which arises upon the sight of a very disagreeable object, may occasion fainting. As an example of this, I have known more than one instance of a person's fainting at the sight of a sore in another person.

MCLXXXII. To this head of horror and disgust, I refer the operation of those odours which in certain persons occasion syncope. It may be supposed, that those odours are endowed with a directly sedative power, and may thereby occasion syncope; but they are, many of them, with respect to other persons, evidently of a contrary quality: and it appears to me, that those odours occasion syncope only in those persons to whom they are extremely disagreeable.

MCLXXXIII. It is, however, very probable that, among the causes of syncope, there are some which, analogous to all those we have already mentioned, act by a directly sedative power; and such may either be diffused in the mass of blood, and thereby communicated to the brain, or may be only taken into the stomach, which so readily and frequently communicates its affections to the brain.

MCLXXXIV. Having now enumerated, and, as I hope, explained the most part of the remote causes of syncope, that either operate immediately upon the brain, or whose operation upon other parts of the body is communicated to the brain, it is proper to observe, that the most part of these causes operate upon certain persons more readily and more powerfully than upon others; and this circumstance, which may be considered as the predisponent cause of syncope, deserves to be inquired into.

It is, in the first place, obvious that the operation of some of those causes depends entirely upon an idiosyncrasy in the persons upon whom they operate; which, however, I cannot pretend to explain. But, in the next place, with respect to the greater part of the other causes, their effects seem to depend upon a temperament which is in one degree or other in common to many persons. This temperament seems to consist in a great degree of sensibility and mobility, arising from a state of debility, sometimes depending upon original conformation, and sometimes produced by accidental occurrences in the course of life.

MCLXXXV. The second set of the remote causes of syncope (MCLXXIV.), or those acting directly upon the heart itself, are certain organic affections of the heart itself, or of the parts immediately connected with it, particularly the great vessels which pour blood into, or immediately receive it from the cavities of the heart. Thus, a dilatation or aneurysm of the heart, a polypus in its cavities, abscesses or ulcerations in its substance, a close adherence of the pericardium to the surface of the heart, aneurysms of the great vessels near to the heart, polypus in these, and ossifications in these or in the valves of the heart, are one or other of them conditions which, upon dissection, have been discovered in those persons who had before laboured under frequent syncope.

MCLXXXVI. It is obvious, that these conditions are all of them, either such as may, upon occasion, disturb the free and regular influx into, or the free egress of the blood from, the cavities of the heart; or such as may otherwise disturb its regular action, by sometimes interrupting it, or sometimes exciting it to more violent and convulsive action. The latter is what is named the Palpitation of the Heart, and it commonly occurs in the same persons who are liable to syncope.

MCLXXXVII. It is this, as I judge, that leads us to perceive in what manner these organic affections of the heart and great vessels may occasion syncope: For it may be supposed, that the violent exertions made in palpitations may either give occasion to an alternate great relaxation (MCLXXVIII.), or to a spasmodic contraction; and in either way suspend the action of the heart, and occasion syncope. It seems to me probable, that it is a spasmodic contraction of the heart that occasions the intermission of the pulse so frequently accompanying palpitation and syncope.

MCLXXXVIII. Though it frequently happens that palpitation and syncope arise, as we have said, from the organic affections above mentioned, it is proper to observe that these diseases, even when in a violent degree, do not always depend on such causes acting directly on the heart, but are often dependent on some of those causes which we have mentioned above as acting primarily on the brain.

MCLXXXIX. I have thus endeavoured to give the pathology of syncope; and of the cure I can treat very shortly.

The cases of syncope depending on the second set of causes (MCLXXIV.), and fully recited in MCLXXXV., I suppose to be generally incurable; as our art, so far as I know, has not yet taught us to cure any one of those several causes of syncope (MCLXXXV.).

The cases of syncope depending on the first set of causes (MCLXXIV.), and whose operations I have endeavoured to explain in MCLXXVII. *et seq.*, I hold to be generally curable, either by avoiding the several occasional causes there pointed out, or by correcting the predisponent causes (MCLXXXIV.). The latter, I think, may generally be done by correcting the debility or mobility of the system, by the means which I have already had occasion to point out in another place.

CHAP. II.—OF DYSPEPSIA, OR INDIGESTION.

MCXC. A want of appetite, a squeamishness, sometimes a vomiting, sudden and transient distentions of the stomach, eructations of various kinds, heart-burn, pains in the region of the stomach, and a bound belly, are symptoms which frequently concur in the same person, and therefore may be presumed to depend upon one and the same proximate cause. In both views, therefore, they may be considered as forming one and the same disease, to which we have given the appellation of *Dyspepsia*, set at the head of this chapter.

"We have established a genus of disease under the title of Dyspepsia, and perhaps there was no avoiding it, but it is too general, and under that generality of little use.

"It comprehends every irregularity in the functions of the stomach; but these are certainly of great diversity in their nature and causes: and we want more accuracy and precision than we yet have.

"There is no part, except the brain, that has so much connexion with the whole of the nervous system as the stomach, and it is therefore affected by a great variety of causes, and its affections often consist in modifications of motions, not distinctly understood (See Vol. I. p. 150.). I am of opinion, that we cannot bestow too much pains on the consideration of the affections of the stomach, as we find that, next to the Pyrexia, they are the most frequent occurrences in practice."

MCXCI. But as this disease is also frequently a secondary and sympathic affection, so the symptoms above mentioned are often joined with many others; and this has given occasion to a very confused and undetermined description of it, under the general title of Nervous Diseases, or under that of Chronic Weakness.—"Dr. Withers, in an account of the disease, under the title of Chronic Weakness, has copied my lectures almost verbatim."—It is proper, however, to distinguish; and I apprehend the symptoms enumerated above are those essential to the idiopathic affection I am now to treat of.

MCXCII. It is indeed to be particularly observed, that these symptoms are often truly accompanied with a certain state of mind which may be considered as a part of the idiopathic affection; but I shall take no further notice of this symptom in the present chapter, as it will be fully and more properly considered in the next, under the title of Hypochondriasis.

MCXCIII. That there is a distinct disease attended always with the greater part of the above symptoms, is rendered very probable by this, that all these several symptoms may arise from one and the same cause; that is, from an imbecility, loss of tone, and weaker action in the muscular fibres of the stomach: and I conclude, therefore, that this imbecility may be considered as the proximate cause of the disease I am to treat of under the name of Dyspepsia.

"This perhaps should be demonstrated here; and in former courses, especially when I first began to teach, I thought it necessary, as I found imperfect and false theories prevailing here. But I hope it is not so necessary now, and I shall not formally enter upon it: I shall therefore here treat only of one symptom, *vomiting*, because that leads to a doctrine which I have first started; and, as I judge, is to be applied in many parts of the system.

"Vomiting, as an increased action, has been commonly supposed to be always occasioned by a direct stimulus applied to the fibres of the stomach, and it may often be so; but I maintain, that it is more frequently occasioned by a disagreeable sensation exciting such motions as are proper to throw off the cause. Such sensations often excite motions without any matter applied to the part moved, at least, without any matter applied, that has any direct tendency to excite motion, but does it only in consequence of a sensation carried to the brain, and from thence exciting the motion. But as a motion is thus excited, we name the power of such a sensation a *stimulus*; but to distinguish it from the proper direct stimulus, we call it an *indirect* stimulus. The operations of such indirect stimuli are frequent in the system, both in health and sickness; and as they are often exerted for salutary purposes, they are considered as evidences of a vis medicatrix naturæ.

"The operation of this vis medicatrix is often mysterious, but not more so than the whole human system. Sensations are agreeable or disagreeable without our being able to say why any substance is the one or the other, more than we can say why the particular refrangibility of certain parts of light gives the sensation of red, and that of others that of blue. We can say only that such is the institution of nature. But sensations, as being agreeable or disagreeable, produce desire or aversion, and these again produce certain motions, such as vomiting; but in all this, the nature of the operation is a mystery absolutely unknown to us. But the motions produced by desire and aversion are manifestly operations of a vis medicatrix naturæ as much as any concurring in diseases.

"There should therefore be no difficulty in admitting a vis medicatrix naturæ; and I think there would be none, if its operations were always in consequence of evident sensations, and especially, of sensations of impression, the only sensations almost taken notice of by philosophers.

"But they are more commonly the effects of sensations of consciousness; that is, agreeable or disagreeable sensations from the state of the body itself, particularly the state of its motions, more weak or vigorous, more free or interrupted,—not with any distinct perception of these states, but merely of something pleasant or uneasy.

"It is by these that the motions of the internal parts are regulated, and often without the concurrence of any volition, and often without the sensations being perceived.

"Whoever considers all this, will in general find no mystery in the vis medicatrix; though we have often spoke of it as a mystery, because we did not think it proper to enter into this explanation. Now, when I have given it, I hope it will be understood what I mean by an indirect stimulus, and their existence and operation will also be understood.

"To apply this to the simple case of vomiting, the simple theory of this is a supposition of the stimulus, as we have said.

"But in many cases no such stimulus is applied. The fainting after blood-letting is attended with vomiting: this, therefore, is produced by debility alone, for it may be prevented entirely by the horizontal posture: and the same doctrine is confirmed, so far as the same attends other cases of fainting.

"That vomiting may be excited by an operation in the brain, cannot be doubted, and the effects of fractures shew it, but especially the operation of sea-sickness, or that produced by the motion of a carriage, or merely by looking at a stream. All these operate by vertigo, carrying off the energy of the brain from the stomach.

"Vomiting is often excited by a disagreeable sensation not applied to the stomach, but to the taste or smell, or even by the imagination renewing these. It is not to be denied that emetics are sometimes direct stimulants, but many are otherwise; as many of them act by nausea, or by the disagreeable sensation which they give. Many of them may be suspected to act by sedative power, and therefore by debility; this is illustrated by opium, which always in a large and often in a small dose excites vomiting, and by tobacco. That a disagreeable sensation often operates, appears from the vomiting attending gastritis, excited by the mildest matters thrown into the stomach. Nay, as under debility, action is always uneasy, so it goes so far in the stomach as to occasion vomiting from every thing thrown into it, when the substance is nowise stimulant, nor is there any suspicion of topical affection to render action uneasy.

"When an obstruction of the pylorus occasions vomiting, I think it must be referred to the uneasy sensation arising from the accumulation of matters in the stomach; at least that it operates so in the case of warm water, is probable; for this certainly cannot operate by its stimulus. It may indeed act by a disagreeable sensation, which is increased by oil added to it, but it operates especially by its bulk producing a constriction of the pylorus, and thereby uneasiness.

"It cannot be imputed to disagreeable sensation, when some of the mildest substances, as an egg, in particular persons excite vomiting.

"The doctrine of debility occasioning vomiting is confirmed by all we said formerly on the vomiting which occurs at the beginning of fevers (XLIV.).

"But enough on the subject of vomiting, as shewing the proximate cause of dyspepsia."

MCXCIV. The imbecility of the stomach, and the consequent symptoms (MCXC.), may, however, frequently depend upon some organic affection of the stomach itself, as tumour, ulcer, or scirrhosity; or upon some affection of other parts of the body communicated to the stomach, as in gout, amenorrhœa, and some others. In all these cases, however, the dyspeptic symptoms are to be considered as secondary or sympathic affections, to be cured only by curing the primary disease. Such secondary and sympathic cases cannot, indeed, be treated of here; but, as I presume that the imbecility of the stomach may often take place without either any organic affection of this part, or any more primary affection in any other part of the body;

so I suppose and expect it will appear, from the consideration of the remote causes, that the dyspepsia may be often an idiopathic affection, and that it is therefore properly taken into the system of methodical Nosology, and becomes the subject of our consideration here.

MCXCV. There can be little doubt, that, in most cases, the weaker action of the muscular fibres of the stomach, is the most frequent and chief cause of the symptoms mentioned in MCXC.; but I dare not maintain it to be the only cause of idiopathic dyspepsia. There is, pretty certainly, a peculiar fluid in the stomach of animals, or at least a peculiar quality in the fluids, that we know to be there, upon which the solution of the aliments taken into the stomach chiefly depends: and it is at the same time probable, that the peculiar quality of the dissolving or digesting fluids may be variously changed, or that their quantity may be, upon occasion, diminished. It is therefore sufficiently probable, that a change in the quality or quantity of these fluids may produce a considerable difference in the phenomena of digestion, and particularly may give occasion to many of the morbid appearances mentioned in MCXC.

MCXCVI. This seems to be very well founded, and points out another proximate cause of dyspepsia beside that we have already assigned: but, notwithstanding this, as the peculiar nature of the digestive fluid, the changes which it may undergo, or the causes by which it may be changed, are all matters so little known, that I cannot found any practical doctrine upon any supposition with respect to them; and as, at the same time, the imbecility of the stomach, either as causing the change in the digestive fluid, or as being induced by that change, seems always to be present, and to have a great share in occasioning the symptoms of indigestion; so I shall still consider the imbecility of the stomach as the proximate and almost sole cause of dyspepsia. And I more readily admit of this manner of proceeding, as, in my opinion, the doctrine applies very fully and clearly to the explaining the whole of the practice which experience has established as the most successful in this disease.

MCXCVII. Considering this, then, as the proximate cause of dyspepsia, I proceed to mention the several remote causes of this disease, as they are such as, on different occasions, seem to produce a loss of tone in the muscular fibres of the stomach. They may, I think, be considered under two heads, The *first* is, of those which act directly and immediately upon the stomach itself: The *second* is, of those which act upon the whole body, or particular parts of it, but in consequence of which the stomach is chiefly or almost only affected.

MCXCVIII. Of the first kind are,

1. Certain sedative or narcotic substances taken into the stomach, such as tea, coffee, tobacco, ardent spirits, opium, bitters, aromatics, putrids, and acescents.

2. The large and frequent drinking of warm water, or of warm watery liquids.

3. Frequent surfeit, or immoderate repletion of the stomach.

4. Frequent vomiting, whether spontaneously arising, or excited by art.

5. Very frequent spitting, or rejection of saliva.

MCXCIX. Those causes which act upon the whole body, or upon particular parts and functions of it, are,

1. An indolent and sedentary life.—" It is observed that the tone of our system is in general supported by the exercise of its functions, action, and exercise; and although many, from constitution, &c. escape the effects of a sedentary life, yet we can have no doubt that such a life brings on, or at least favours the operation of other causes which bring on dyspepsia.

" I will add—not only indolence of body, but of mind. I can show that a certain action of the mind is as necessary to preserve its functions, as the action of the body is to preserve its healthy state. I shall recur to this in speaking of the dejection of the mind, which is frequently a symptom of dyspepsia."

2. Vexation of mind, and disorderly passions of any kind.

3. Intense study, or close application to business too long continued.

4. Excess in venery.

5. Frequent intoxication; which partly belongs to this head, partly to the former.

6. The being much exposed to moist and cold air when without exercise.—" Cold certainly does invigorate the system in many cases, when we preserve the body in its due temperature. But if we go the length of lowering the temperature, cold may

be a sedative power, may weaken us, and may have this effect on any part of the body. It certainly has it on the surface of the body, and often goes the length of weakening the tone of the extreme vessels without remarkably obstructing the perspiration. That this effect of cold is very often communicated to the stomach, is directly proved by this, that most persons liable to dyspepsia have it more considerably in winter than in summer; and many persons escape it only by removing for the winter to warmer climates, and often find a flannel shirt a most effectual remedy.

"The action of cold is greatly increased by the concurrence of moisture. Moist seasons, although they be not very cold, may have the same effect: and this accounts for the vicissitude in spirits, and for the other symptoms of dyspepsia so often found to accompany changes of the weather: dyspeptics especially feel the effects of the coming on of prevailing moisture. This may perhaps be an operation more generally depending upon the nervous system, and may be connected with the different temperature and pressure of the atmosphere: but it appears to me a very simple and obvious explanation, that it merely affects the tone of the extreme vessels, and is communicated to the stomach, and from thence very readily communicated to the mind."

MCC. Though the disease, as proceeding from the last set of causes, may be considered as a symptomatic affection only; yet, as the affection of the stomach is generally the first, always the chief, and often the only effect which these causes produce or discover, I think the affection of the stomach may be considered as the disease to be attended to in practice; and the more properly so, as in many cases the general debility is only to be cured by restoring the tone of the stomach, and by remedies first applied to this organ.

MCCI. For the cure of this disease, we form three several indications; a preservative, a palliative, and a curative.

The *first* is, to avoid or remove the remote causes just now enumerated.

The *second* is, to remove those symptoms which especially contribute to aggravate and continue the disease. And,

The *third* is, to restore the tone of the stomach; that is, to correct or remove the proximate cause of the disease.

MCCII The propriety and necessity of the first indication is sufficiently evident, as the continued application, or frequent repetition of those causes, must continue the disease; may defeat the use of remedies; or, in spite of these, may occasion the recurrence of the disease. It is commonly the neglect of this indication which renders this disease so frequently obstinate. How the indication is to be executed, will be sufficiently obvious from the consideration of the several causes. But it is proper for the practitioner to attend to this, that the execution is often exceedingly difficult, because it is not easy to engage men to break in upon established habits, or to renounce the pursuit of pleasure; and particularly, to persuade men that those practices are truly hurtful which they have often practised with seeming impunity.

MCCIII. The symptoms of this disease which especially contribute to aggravate and continue it, and therefore require to be more immediately corrected or removed, are, first, the crudities of the stomach already produced by the disease, and discovered by a loss of appetite, by a sense of weight and uneasiness in the stomach, and particularly by the eructation of imperfectly digested matters.

" Vomiting and eructation are not actions entirely of the same kind. In vomiting there is always a concurrence of the diaphragm and abdominal muscles, and the whole contents of the stomach are pressed and commonly ejected in considerable quantity; whereas in eructation, the diaphragm, and abdominal muscles do not concur, and the quantity rejected at once is small.

" Vomiting is always, eructation seldom preceded by nausea. Nausea will always pass into vomiting, very seldom into eructation.

" Further, nausea and vomiting may be excited by causes acting in the fauces, by imagination, by causes irritating the whole or particular parts of the stomach: Eructation seems to depend upon an irritation of the *cardia* alone, at least it is especially excited by every matter which is apt to separate from the other contents of the stomach, and at the same time to float next to the cardia.

" Thus the most frequent cause and most frequent matter of eructation is air.

" Another, especially acrid, is oil; and a third, are the more insoluble parts of our aliments. The cause is probably an irritation of the cardia, but how it operates is more difficult.

" What is the motion produced, and how different from vomiting, is not explained; but such it is, and why it follows certain causes, is not to be explained on this or on any other principle."

Another symptom to be immediately corrected, is an unusual quantity, or a higher degree than usual, of acidity present in the stomach, discovered by various disorders in digestion, and by other effects to be mentioned afterwards.

The third symptom aggravating the disease, and otherwise in itself urgent, is costiveness, and therefore constantly requiring to be relieved.

MCCIV. The *first* of these symptoms is to be relieved by exciting vomiting; and the use of this remedy, therefore, usually and properly begins the cure of this disease. The vomiting may be excited by various means, more gentle or more violent. The former may answer the purpose of evacuating the contents of the stomach. But emetics and vomiting may also excite the ordinary action of the stomach; and both, by variously agitating the system, and particularly by determining to the surface of the body may contribute to remove the causes of the disease. But these latter effects can only be obtained by the use of emetics of the more powerful kinds, such as the antimonial emetics especially are.—" They are, however, unhappy who entirely trust to this mode of relief, and have therefore frequent recourse to it; for I am certain, from much experience, that frequent vomiting hurts the tone of the stomach, and often makes the symptoms of indigestion recur more frequently and sooner than they otherwise would have done."

MCCV. The *second* symptom to be palliated, is an excess of acidity, either in quantity or quality, in the contents of the stomach. In man there is a quantity of acescent aliment almost constantly taken in, and, as I think, always undergoes an acetous fermentation in the stomach; and it is therefore that, in the human stomach, and in the stomachs of all animals using vegetable food, there is always found an acid present. This acid, however, is generally innocent, and occasions no disorder, unless either the quantity of it is very large, or the acidity proceeds to a higher degree than usual. But, in either of these cases the acid occasions various disorders, as flatulency, eructation, heartburn, gnawing pains of the stomach, irregular appetites and cravings, looseness, griping, emaciation, and debility. To obviate or remove these effects aggravating and continuing the disease, it is not only necessary to correct the acid present in the stomach; but especially as this acid proves a ferment determining and increasing the acescency of the aliments afterwards taken in, it is proper also, as soon as possible, to correct the disposition to excessive acidity.

MCCVI. The acidity present in the stomach may be corrected by the use of alkaline salts, or absorbent earths, or by such substances, containing these, as can be decomposed by the acid of the stomach. Of the alkalines, the caustic is more effectual than the mild; and this accounts for the effects of lime-water. By employing absorbents, we avoid the excess of alkali, which might sometimes take place. The absorbents are different, as they form a neutral more or less laxative; and hence the difference between magnesia alba and other absorbents. It is to be observed, that alkalines and absorbents may be employed to excess; as, when employed in large quantity, they may deprive the animal fluids of the acid necessary to their proper composition.

MCCVII. The disposition to acidity may be obviated by avoiding acescent aliments, and using animal food little capable of acescency. This, however, cannot be long continued without corrupting the state of our blood; and, as vegetable food cannot be entirely avoided, the excess of its acescency may in some measure be avoided, by choosing vegetable food the least disposed to a vinous fermentation, such as leavened bread and well-fermented liquors, and, instead of fresh native acids, employing vinegar.

MCCVIII. The acid arising from acescent matters, in a sound state of the stomach, does not proceed to any high degree, or is again soon involved, and made to disappear; but this does not always happen; and a more copious acidity, or a higher degree of it, may be produced, either from a change in the digestive fluids, become less fit to moderate fermentation, and to cover acidity, or from their not being supplied in due quantity. How the former may be occasioned, we do not well understand; but we can readily perceive that the latter, perhaps the former also, may proceed from a weaker action of the muscular fibres of the stomach. In certain cases, sedative passions, immediately after they arise, occasion the appearance of acidity in the stomach, which did not appear before; and the use of stimulants often corrects or obviates an acidity that would otherwise have appeared. From these considerations, we conclude, that the production and subsistence of acidity in the stomach is to be especially prevented, by restoring and exciting the proper action of it by the several means to be mentioned hereafter.

MCCIX. But it is also to be further observed, that, though there are certain powers in the stomach for preventing a too copious acidity, or a high degree of it, they are not, however, always sufficient for preventing acescency, or for covering the acidity produced; and therefore, as long as vegetable substances remain in the stomach, their acescency may go on and increase. From hence we perceive, that a special cause of the excess of acidity may be the too long retention of acescent matters in the stomach; whether this may be from those matters being of more difficult solution, or from the weakness of the stomach more slowly discharging its contents into the duodenum, or from some impediment to the free evacuation of the stomach by the pylorus. The latter of these causes we are well acquainted with, in the case of a scirrhous pylorus, producing commonly the highest degree of acidity. In all the instances of this scirrhosity I have met with, I have found it incurable. But the first of those causes is to be obviated by avoiding such aliments as are of difficult solution; and the second is to be mended by the several remedies for exciting the action of the stomach, to be mentioned afterwards.

MCCX. The *third* symptom commonly accompanying dyspepsia, which requires to be immediately removed, is costiveness. There is so much connexion between the several portions of the alimentary canal with respect to the peristaltic motion, that, if accelerated or retarded in any one part, the other parts of it are commonly affected in the same manner. Thus, as the brisker action of the stomach must accelerate the action of the intestines, so the slower action of the intestines must in some measure retard that of the stomach. It is therefore of consequence to the proper action of the stomach, that the peristaltic motion of the intestines determining their contents downwards, be regularly continued; and that all costiveness, or interruption of that determination be avoided. This may be done by the various means of exciting the action of the intestines. But it is to be observed here, that, as every considerable evacuation of the intestines weakens their action, and is ready, therefore, to induce costiveness when the evacuation is over; so those purgatives which produce a large evacuation are unfit for correcting the habit of costiveness. This, therefore, should be attempted by medicines which do no more than solicit the intestines to a more ready discharge of their present contents, without either hurrying their action, or increasing the excretions made into their cavity; either of which effects might produce a purging. There are, I think, certain medicines peculiarly proper on this occasion, as they seem to stimulate especially the great guts, and to act little on the higher parts of the intestinal canal.

MCCXI. We have thus mentioned the several means of executing our second indication; and I proceed to the *third*, which is, as we have said, the proper curative; and it is to restore the tone of the stomach, the loss of which we consider as the proximate cause of the disease, or at least as the chief part of it. The means of satisfying this indication we refer to two heads. One is, of those means which operate directly and chiefly on the stomach itself; and the other is, of those means which, operating upon the whole system, have their tonic effects thereby communicated to the stomach.

MCCXII. The medicines which operate directly on the stomach, are either stimulants or tonics.

The stimulants are saline or aromatic.

The saline are acids or neutrals.

Acids of all kinds seem to have the power of stimulating the stomach, and therefore often increase appetite: but the native acids, as liable to fermentation, may otherwise do harm, and are therefore of ambiguous use. The acids, therefore, chiefly and successfully employed, are the vitriolic, muriatic, and the distilled acid of vegetables, as it is found in tar-water, which are all of them antizymics.

The neutral salts answering this intention, are especially those which have the muriatic acid in their composition, though it is presumed that neutrals of all kinds have more or less of the same virtue.

MCCXIII. The aromatics, and perhaps some other acrids, certainly stimulate the stomach, as they obviate the acescency and flatulency of vegetable food; but their stimulus is transitory; and, if frequently repeated, and taken in large quantities, they may hurt the tone of the stomach.

MCCXIV. The tonics employed to strengthen the stomach are bitters, bitters and astringents combined, and chalybeates.

Bitters are undoubtedly tonic medicines, both with respect to the stomach and the whole system: but their long-continued use has been found to destroy the tone of the stomach and of the whole system; and whether this is from the mere repetition of their tonic operation, or from some narcotic power joined with the tonic in them, I am uncertain.

MCCXV. Bitters and astringents combined, are, probably, more effectual tonics than either of them taken singly; and we suppose such a combination to take place in the Peruvian bark; which therefore proves a powerful tonic, both with respect to the stomach and to the whole system. But I have some ground to suspect, that the long-continued use of this bark may, like bitters, destroy both the tone of the stomach and of the whole system.

MCCXVI. Chalybeates may be employed as tonics in various forms, and in considerable quantities with safety. They have been employed often in the form of mineral waters, and seemingly with success: but whether this is owing to the chalybeate in the composition of these waters, or to some other circumstances attending their use, I dare not positively determine; but the latter opinion seems to me the more probable.

MCCXVII. The remedies which strengthen the stomach, by being applied to the whole body, are exercise and the application of cold.

As exercise strengthens the whole body, it must also strengthen the stomach; but it does this also in a particular manner, by promoting perspiration, and exciting the action of the vessels on the surface of the body, which have a particular consent with the muscular fibres of the stomach. This particularly explains why the exercises of gestation, though not the most powerful in strengthening the whole system, are, however, very powerful in strengthening the stomach; of which we have a remarkable proof in the effects of sailing. In strengthening the general system, as fatigue must be avoided, so bodily exercise is of ambiguous use; and perhaps it is thereby, that riding on horseback has been so often found to be one of the most powerful means of strengthening the stomach, and thereby of curing dyspepsia.—"As a bodily exercise, I can say, that walking has good effects. I have always thought it necessary to contrive other amusements or business: and there are several instances of persons, who have long laboured under weakness of the stomach, cured by undertaking the overseeing of their farm, which obliges them to be much in fresh air, and in constant gentle motion. I have cured weak stomachs by engaging the persons in the study of Botany, and particularly in the investigation of our native plants, and in other gentle and long-continued amusements, such as our amusement of golf."

MCCXVIII. The other general remedy of dyspepsia is the application of cold; which may be in two ways; that is, either by the application of cold air, or of cold water. It is probable, that, in the atmosphere constantly surrounding our bodies, a certain degree of cold, considerably less than the temperature of our bodies themselves, is necessary to the health of the human body. Such a degree of cold seems to strengthen the vessels on the surface of the body, and therefore the muscular fibres of the stomach. But, further, it is well known, that, if the body is in exercise sufficient to support such a determination to the surface as to prevent the cold from producing an entire construction of the pores, a certain degree of cold in the atmosphere with such exercise, will render the perspiration more considerable From the sharp appetite that, in such circumstances, is commonly produced, we can have no doubt, that, by the application of such cold, the tone of the stomach is considerably strengthened. Cold air, therefore, applied with exercise, is a mos powerful tonic with respect to the stomach: And this explains why, for that purpose, no exercises within doors, or in close carriages, are so useful as those in the open air.

MCCXIX. From the same reasoning, we can perceive, that the application of cold water, or cold bathing, while it is a tonic with respect to the system in general, and especially as exciting the action of the extreme vessels, must in both respects be a powerful means of strengthening the tone of the stomach.—"That it excites the action of the vessels on the surface of the body, is well known from the warmth which immediately succeeds its operation, where it acts properly; and when it does leave a chilliness and cold, it does not answer the purpose. There is another curious fact, that cold bathing renders persons less susceptible to the effects of cold, which is only to be understood by its having considerable power in supporting the vigour and action of the extreme vessels. We resist cold in proportion to the vigour of the system."

MCCXX. These are the remedies to be employed towards a radical cure of idiopathic dyspepsia; and it might be, perhaps, expected here, that I should treat also of the various cases of the sympathic disease. But it will be obvious, that this cannot be properly done without treating of all the diseases of which the dyspepsia is a symptom, which cannot be proper in this place. It has been partly done already, and will be further treated of in the course of this work. In the mean time, it may be proper to observe, that there is not so much occasion for distinguishing between the idiopathic and sympathic dyspepsia, as there is in many other cases of idiopathic and sympathic diseases. For, as the sympathic cases of dyspepsia are owing to a loss of tone in some other part of the system, which is from thence communicated to the stomach; so the tone of the stomach restored may be communicated to the part primarily affected; and therefore the remedies of the idiopathic may be often usefully employed, and are often the remedies chiefly employed in sympathic dyspepsia.

"The sympathic cases, however, are by much the most frequent, and unless they are discerned, our labour may be lost. The principal cases are: Dyspepsia febrilis, paralytica, hypochondriaca, hysterica, chlorotica, catamenialis, hæmorrhoidalis, cachectica, arthritica, nephritica.

" *Dyspepsia febrilis.* While fever is presented, the dyspepsia will be considered as a symptom. But though intermittents, and perhaps continued fevers, are seemingly removed, a diathesis often remains which affects the stomach.

" The *D. paralytica* is not a frequent case, as the natural as well as the vital functions escape in that disease; but where they do not, the dyspepsia must be considered as a symptom.

" The *D. hypochondriaca* gives the most trouble: it is that which accompanies the atrabilarian temperament in body and mind. The morbid effects of this on the body are the dyspepsia, and instead of this title, I have formerly given the whole under the title of hypochondriasis: but that is not proper, as the notion of this has commonly been confined to cases in which the mind also is affected with languor, dejection, timidity, and sadness. I have, therefore, now established the two genera of dyspepsia and hypochondriasis, as being the same in the state of the stomach, but distinguished by the state of the mind. This however is not satisfactory, for I find the symptoms of the mind are sometimes present and absent in the same person, the cases being otherwise the same. The mind is not always affected in the atrabilarian temperament, and it is extremely often in the Dyspepsia arthritica.

" *D. hysterica.* We shall say that hysteria is properly a convulsive motion of the alimentary canal, with peculiar circumstances, by which it truly differs greatly from the dyspepsia: but the frequent repetition of such convulsive paroxysms leaves the stomach in such a weakened state, as to shew the symptoms of dyspepsia, which I therefore term *hysterica*. From hence it will appear, that the two diseases may be in some measure combined, while the weakened state may favour the spasmodic, and produce hysteric symptoms. Further, the causes which have a great share in exciting proper hysteria, may operate only in producing dyspepsia, or effect a combination of the two. This leads me to the next species—

D. chlorotica. The theory of chlorosis is sufficiently difficult, but nothing is more evident than the general connexion, and mutual influence of the stomach and uterus; and it is probable, that the dyspepsia attending chlorosis is merely the atony affecting the uterus, communicated to the stomach, and this Dyspepsia therefore is properly a species, but to be considered as symptomatic.

"This leads to two remarks: One is, that while the chlorosis is almost constantly attended with dyspepsia, or symptoms referred to that, among which are anorexia, it is often also attended with a keen appetite, and especially for matters not esculent; and therefore a question arises how far a sharp, or an irregular appetite, may belong to a real debility; I think it may, and probably does. Appetite may arise from sensations of consciousness, and always does from a feeling of some want in the stomach, a sense of emptiness, a want of distention; and though it consists, or chiefly depends on the vigorous tone of the fibres, yet that only gives occasion to feel more sensibly the want of something for it to act upon.

"In other cases, it arises entirely from the want of action and stimulus, as in the case of a desire for salt, and otherwise sapid things, and where the appetite is confined to these. It is a case of the same kind, when a person has been accustomed to the stimulus of a dram; and the want of it gives an uneasy sensation, which produces an appetite for the renewal of it.

"Appetites may therefore arise from a sense of debility, and may be combined with dyspepsia. They are likely to be irregular, for the natural causes will be directed to the natural object. But why they are in certain cases so very irregular, it is impossible to say.

"Why a dryness of the mouth should give thirst, and an emptiness of the stomach should give hunger, we know not, and must resolve it into the will of our Maker. It is the same with the irregular appetites; we can never perceive their efficient, and not always their final cause, but in general we can perceive them dependent on a state of debility, a sense of want of the usual stimulus or action.

"Another remark to be made is, that not only appetites may arise from want of action in the stomach, but may also arise from increased action, and an increased action attending debility. As spasms are often attendant on atony, so are convulsive or irregularly increased motions; and such I take to be those uneasy gnawings which are named *morsus ventriculi*, and whose nature appears from their often ending in spasmodic gastrodynia. With this morsus ventriculi is commonly combined an appetite or craving for food, and it is relieved by the taking in of food. This sort of appetite is in some measure like the natural appetite, depending upon an increased action, but from another cause, that is, a convulsive action arising from atonia.

"Before I quit the species *chlorotica*, I must observe, that there is another, to be entitled *D. gravidarum*, but I pass it over, because it is hardly the object of practice.

"But I must observe, that besides the proper chlorotica there is a,

"*D. catamenialis*; it appears, that the ordinary flow of the menstrual discharge, retarded or totally suppressed, affects the stomach, and disposes it to be affected more readily with spasm.

"And now having thus pointed out the connexion of the stomach with the uterus in the *Dyspepsia hysterica*, *chlorotica*, and *catamenialis*, it will be obvious how the dyspepsia has been so often confounded with hysteria, and considered as a part of the hysteric disease. Attending at the same time to the common confusion of hysteric and hypochondriac affections, we will perceive why dyspepsia has been confounded with both, and the confused mass has received the general appellation of *Nervous Diseases*,—a term speciously founded, but the most loose and vague ever introduced, and truly an *asylum ignorantiæ*. I will not say what authors have increased the confusion, or criticise them here; but I know none that have avoided the too general use of the term; and that to avoid confusion and great inaccuracy in practice, it is absolutely necessary to study dyspepsia, to distinguish the idiopathic from the sympathic, and the different cases of the last from each other. We go on to do so, and put next the,

"*D. hæmorrhoidalis*. When the flux has become habitual, it becomes a part of the balance of the system, and the atony of the hæmorrhoidal vessels may, in the same manner as that of the vessels of the uterus (in D. chlorotica), be communicated to the stomach.

"*D. cachectica.* The ancients have delivered down to us a disease under the title of Cachexy, of which it is difficult to give a precise notion. So far as we can, it is a beginning anasarca, which may be referred to various causes, but is chiefly to be called Cachexy, when it arises from a general loss of tone in the exhalent and absorbent vessels. This we find commonly connected with scirrhosities of the abdominal viscera, which may operate by producing stagnation of venous blood: but there are many cases wherein this will not account for the effects; and such must therefore be referred to the atony of the viscera communicated to the rest of the system, and which, communicated to the stomach, gives the *Dyspepsia cachectica*, analogous to the *chlorotica*.

"I suspect that there is another dyspepsia which belongs to this head, or should form a particular species. It is that cachexy and concurrent dyspepsia which arises from repelled eruptions and dried old ulcers. The common effect of both is dyspepsia, cachexy, and dropsy. The common account of this is by the re-absorption, or retention of an acrimony; and even in that case we must refer the effect to loss of tone. But in most cases I believe the acrimony may be neglected, or the effect referred to an atony of a part that by habit had become necessary to the balance, and now therefore transferred to the other parts, and, as always, especially to the stomach (See *Morgagni*, Ep. 55.). With regard to—

"*D. arthritica* and D. *nephritica*, there is little occasion for more here, after what we have said before on the subject of gout. The consideration of the gout, in which the symptoms so manifestly depend upon atony, and atony transferred, does much to illustrate the present subject; and again this subject, shewing so many cases of atonic affections communicated from one part to another, serves very much to confirm our theory of gout."

MCCXXI. Another part of our business here might be to say how some other of the urgent symptoms, besides those above mentioned, are to be palliated. On this subject, I think it is enough to say, that the symptoms chiefly requiring to be immediately relieved, are flatulency, heartburn, other kinds of pain in the region of the stomach, and vomiting.

The dyspeptic are ready to suppose, that the whole of their disease consists in a flatulency. In this it will be obvious that they are mistaken; but although the flatulency is not to be entirely cured, but by mending the imbecility of the stomach by the means above mentioned; yet the flatulent distention of the stomach may be relieved by carminatives, as they are called, or medicines that produce a discharge of wind from the stomach; such are the various antispasmodics, of which the most effectual is the vitriolic æther.

The heartburn may be relieved by absorbents, antispasmodics, or demulcents.—" Asafœtida, when taken into the stomach, is particularly useful in relieving those spasmodic complaints which so frequently attend dyspepsia: and as it has manifestly a laxative power, it is well suited to relieve the flatulent colics of hysteric and hypochondriac persons.—*M.M.*

The other pains of the stomach may be sometimes relieved by carminatives, but most certainly by opiates.

" In dyspepsia and hypochondriasis, there often happen pains and spasmodic symptoms, which may be, and for the most part are relieved by opium. It is accordingly often employed, and it is not easily withheld from such patients. But I have always found the frequent use of opiates in these diseases extremely pernicious.—*M.M.*

Vomiting is to be cured most effectually by opiates thrown by injection into the anus.

CHAP. III.—OF HYPOCHONDRIASIS, OR THE HYPOCHONDRIAC AFFECTION, COMMONLY CALLED VAPOURS OR LOW SPIRITS.

" Those of the melancholic temperament appear to be slow in receiving impressions or irritations, with regard to body and mind: they require larger doses of stimulants of all kinds, they are much less susceptible of passions than those of the contrary temperament, and tenacious in retaining impressions which have once been made, particularly that of revenge. They are further remarkable for their constant attachment to one object, to one research: they are persons who have produced some of the greatest improvements in science; they have, particularly, furnished us with some of the best facts and experiments, which have been conducted with the utmost accuracy. They are slow in any change of sentiments, in their resolutions and passions. These are clear proofs that there is something peculiar here in the constitution of the nervous power, the organs and motions of which are intimately connected with the soul in all its operations, as is readily allowed. The above circumstances shew, that their nervous power is in some way less moveable, I do not pretend to explain how; but this state, going to excess in the body, will affect that part of the body which is first acted upon in all affections of the nervous system, that is the alimentary canal. I shall give an illustration. The melancholic temperament is universally attended with a costive habit, which is inseparable from it, and which I have pointed out as founded on a slow and torpid motion in the whole alimentary canal. If the whole canal is thus affected, it may be readily perceived, how all the several circumstances of dyspepsia take place in the stomach.

"I might shew, that in this temperament, there is a disposition to venous plethora; there is a different balance between the veins and arteries in the different periods of life; in those of the melancholic temperament, the balance on the side of the veins seems to prevail: they are, therefore, as we know from experience, very liable to all the effects of a venous plethora, particularly in the system of the vena portarum. Physicians, therefore, have long ago observed, that the melancholic temperament consisted in various affections of the hypochondriac system, and from this the term *hypochondriasis* has arisen."

MCCXXII. In certain persons there is a state of mind distinguished by a concurrence of the following circumstances: A languor, listlessness, or want of resolution and activity with respect to all undertakings; a disposition to seriousness, sadness, and timidity; as to all future events, an apprehension of the worst or most unhappy state of them; and, therefore, often upon slight grounds, an apprehension of great evil. Such persons are particularly attentive to the state of their own health, to every the smallest change of feeling in their bodies; and from any unusual feeling, perhaps of the slightest kind, they apprehend great danger, and even death itself. In respect to all these feelings and apprehensions, there is commonly the most obstinate belief and persuasion.

MCCXXIII. This state of mind is the Hypochondriasis of medical writers. See Linnæi Genera Morborum, Gen. 76, et Sagari Systema Symptomaticum, Class XIII. Gen. 5. The same state of mind is what has been commonly called *Vapours* and *Low Spirits*. Though the term *Vapours* may be founded on a false theory, and therefore improper; I beg leave, for a purpose that will immediately appear, to employ it for a little here.

MCCXXIV. Vapours, then, or the state of mind described above, is like every other state of mind, connected with a certain state of the body, which must be inquired into, in order to its being treated as a disease by the art of physic.

MCCXXV. This state of the body, however, is not very easily ascertained: for we can perceive, that on different occasions it is very different; vapours being combined sometimes with dyspepsia, sometimes with hysteria, and sometimes with melancholia, which are diseases seemingly depending on very different states of the body.

MCCXXVI. The combination of vapours with dyspepsia is very frequent, and in seemingly very different circumstances. It is especially these different circumstances that I would wish to ascertain; and I remark that they are manifestly of two different kinds. First, as the disease occurs in young persons of both sexes, in persons of a sanguine temperament, and of a lax and flaccid habit. Secondly, as it occurs in elderly persons of both sexes, of a melancholic temperament, and of a firm and rigid habit.

MCCXXVII. These two different cases of the combination of vapours and dyspepsia, I consider as two distinct diseases, to be distinguished chiefly by the temperament prevailing in the persons affected.

As the dyspepsia of sanguine temperaments is often without vapours; and, as the vapours, when joined with dyspepsia in such temperaments, may be considered as perhaps always a symptom of the affection of the stomach ; so to this combination of dyspepsia and vapours, I would still apply the appellation of *Dyspepsia*, and consider it as strictly the disease treated of in the preceeding chapter.

But the combination of dyspepsia and vapours in melancholic temperaments, as the vapours or the turn of mind peculiar to the temperament, nearly that described above in MCCXXII., are essential circumstances of the diseases ; and, as this turn of mind is often with few, or only slight symptoms of dyspepsia ; and, even though the latter be attending, as they seem to be rather the effects of the general temperament, than of any primary or topical affection of the stomach ; I consider this combination as a very different disease from the former, and would apply to it strictly the appellation of *Hypochondriasis*.

MCCXXVIII. Having thus pointed out a distinction between Dyspepsia and Hypochondriasis, I shall now, using these terms in the strict sense above mentioned, make some observations which may, I think, illustrate the subject, and more clearly and fully establish the distinction proposed.

MCCXXIX. The dyspepsia often appears early in life, and is frequently much mended as life advances : but the hypochondriasis seldom appears early in life, and more usually in more advanced years only ; and more certainly still, when it has once taken place, it goes on increasing as life advances to old age.

This seems to be particularly well illustrated, by our observing the changes in the state of the mind which usually take place in the course of life. In youth, the mind is cheerful, active, rash, and moveable ; but as life advances, the mind by degrees becomes more serious, slow, cautious, and steady ; till at length, in old age, the gloomy, timid, distrustful, and obstinate state of melancholic temperaments is more exquisitely formed. In producing these changes, it is true, the moral causes have a share ; but it is at the same time obvious, that the temperament of the body determines the operation of these moral causes, sooner or later, and in a greater or less degree, to have their effects. The sanguine temperament retains longer the character of youth, while the melancholic temperament brings on more early the manners of old age.

MCCXXX. Upon the whole, it appears, that the state of the mind which attends and especially distinguishes hypochondriasis, is the effect of that same rigidity of the solids, torpor of the nervous power, and peculiar balance between the arterial and venous systems which occur in advanced life, and which at all times take place more or less in melancholic temperaments. If, therefore, there be also somewhat of a like state of mind attending the dyspepsia which occurs early in life in sanguine temperaments and lax habits, it must depend upon a different state of the body, and probably upon a weak and moveable state of the nervous power.

MCCXXXI. Agreeable to all this, in dyspepsia there is more of spasmodic affection, and the affection of the mind (MCCXXII.) is often absent, and, when present, is perhaps always of a slighter kind; while in hypochondriasis the affection of the mind is more constant, and the symptoms of dyspepsia, or the affections of the stomach, are often absent, or, when present, are in a slighter degree.

I believe the affection of the mind is commonly different in the two diseases. In dyspepsia, it is often languor and timidity only, easily dispelled; while in hypochondriasis, it is generally the gloomy and rivetted apprehension of evil.

The two diseases are also distinguished by some other circumstances. Dyspepsia, as I have said, is often a symptomatic affection; while hypochondriasis is, perhaps, always a primary and idiopathic disease.

As debility may be induced by many different causes, dyspepsia is a frequent disease; while hypochondriasis, depending upon a peculiar temperament, is more rare.

MCCXXXII. Having thus endeavoured to distinguish the two diseases, I suppose the peculiar nature and proximate cause of *hypochondriasis* will be understood; and I proceed, therefore, to treat of its cure.

So far as the affections of the body, and particularly of the stomach, are the same here as in the case of *dyspepsia*, the method of cure might be supposed to be also the same; and accordingly the practice has been carried on with little distinction: but I am persuaded that a distinction is often necessary.

MCCXXXIII. There may be a foundation here for the same preservative indication as first laid down in the cure of *dyspepsia* (MCCII.); but I cannot treat this subject so clearly or fully as I could wish, because I have not yet had so much opportunity of observation as I think necessary to ascertain the remote causes; and I can hardly make use of the observations of others, who have seldom or never distinguished between the two diseases. What, indeed, has been said with respect to the remote causes of *melancholia*, will often apply to the *hypochondriasis*, which I now treat of; but the subject of the former has been so much involved in a doubtful theory, that I find it difficult to select the facts that might properly and strictly apply to the latter. I delay this subject, therefore, till another occasion; but in the mean time trust, that what I have said regarding the nature of the disease, and some remarks I shall have occasion to offer in considering the method of cure, may in some measure supply my deficiency on this subject of the remote causes.

MCCXXXIV. The *second* indication laid down in the cure of dyspepsia (MCCI.), has properly a place here; but it is still to be executed with some distinction.

MCCXXXV. An anorexia, and accumulation of crudities in the stomach, does not so commonly occur in hypochondriasis as in dyspepsia; and therefore vomiting (MCCIV.) is not so often necessary in the former as in the latter.

MCCXXXVI. The symptom of excess of acidity, from the slow evacuation of the stomach in melancholic temperaments, often arises to a very high degree in hypochondriasis; and therefore, for the same reason as in MCCV., it is to be obviated and corrected with the utmost care. It is upon this account that the several antacids, and the other means of obviating acidity, are to be employed in hypochondriasis, and with the same attentions and considerations as in MCCVI. and following; with this reflection, however, that the exciting the action of the stomach there mentioned, is to be a little differently understood, as shall be hereafter explained.

MCCXXXVII. As costiveness, and that commonly to a considerable degree, is a very constant attendant of hypochondriasis, so it is equally hurtful as in dyspepsia. It may be remedied by the same means in the former as in the latter, and they are to be employed with the same restrictions as in MCCX.

MCCXXXVIII. It is especially with respect to the *third* indication laid down in the cure of dyspepsia (MCCI.), that there is a difference of practice to be observed in the cure of hypochondriasis; and that often one directly opposite to that in the case of dyspepsia, is to be followed.

MCCXXXIX. In dyspepsia, the chief remedies are, the tonic medicines, which, to me, seem neither necessary nor safe in hypochondriasis; for, in this there is not a loss of tone, but a want of activity that is to be remedied.

Chalybeate mineral waters have commonly been employed in hypochondriasis, and seemingly with success. But this is probably to be imputed to the amusement and exercise usually accompanying the use of these waters, rather than to the tonic power of the small quantity of iron which they contain. Perhaps the elementary water, by favouring the excretions, may have a share in relieving the disease.

MCCXL. Cold bathing is often highly useful to the dyspeptic, and, as a general stimulant, may sometimes seem useful to the hypochondriac; but it is not commonly so to the latter: while, on the other hand, warm bathing, hurtful to the dyspeptic, is often extremely useful to the hypochondriac.

MCCXLI. Another instance of a contrary practice necessary in the two diseases, and illustrating their respective natures, is, that the drinking tea and coffee is always hurtful to the dyspeptic, but is commonly useful to the hypochondriac.

MCCXLII. Exercise, as it strengthens the system, and thereby the stomach, and more especially as, by increasing the perspiration, it excites the action of the stomach, proves one of the most useful remedies in dyspepsia; and, further, as by increasing the perspiration, it excites the activity of the stomach, it likewise proves an useful remedy in the hypochondriasis. However, in the latter case, as I shall explain presently, it is still a more useful remedy by its operation upon the mind than by that upon the body.

MCCXLIII. It is now proper that we proceed to consider the most important article of our practice in this disease, and which is, to consider the treatment of the mind; an affection of which sometimes attends dyspepsia, but is always the chief circumstance in hypochondriasis. What I am to suggest here will apply to both diseases; but it is the hypochondriasis that I am to keep most constantly in view.

MCCXLIV. The management of the mind in hypochondriacs is often nice and difficult. The firm persuasion that generally prevails in such patients, does not allow their feelings to be treated as imaginary, nor their apprehension of danger to be considered as groundless, though the physician may be persuaded that it is the case in both respects. Such patients, therefore, are not to be treated either by raillery or by reasoning.—" We are very often led to reason such persons out of their fears; but it is a fact that reasoning has no power in this case: they may be convinced, but the direction of their mind is too powerful. The same thought occurs to them at every moment; nay, there is nothing more provoking and offensive to them than these attempts to cure their feelings. I never almost tried this reasoning without repenting it. I have lost my patients altogether by showing to them the false foundations of their fears. They must be drawn from their own thoughts, from their own affairs, entirely by artifice and stratagem."

It is said to be the manner of hypochondriacs to change often their physician, and indeed they often do it consistently; for a physician who does not admit the reality of the disease, cannot be supposed to take much pains to cure it, or to avert the danger of which he entertains no apprehension.

If, in any case, the pious fraud of a placebo be allowable, it seems to be in treating hypochondriacs; who, anxious for relief, are fond of medicines, and, though often disappointed, will still take every new drug that can be proposed to them.

MCCXLV. As it is the nature of man to indulge every present emotion, so the hypochondriac cherishes his fears; and, attentive to every feeling, finds in trifles light as air, a strong confirmation of his apprehensions. His cure, therefore, depends especially upon the interruption of his attention, or upon its being diverted to other objects than his own feelings.

MCCXLVI. Whatever aversion to application of any kind may appear in hypochondriacs, there is nothing more pernicious to them than absolute idleness or a vacancy from all earnest pursuit. It is owing to wealth admitting of indolence, and leading to the pursuit of transitory and unsatisfying amusements, or to that of exhausting pleasures only, that the present times exhibit to us so many instances of hypochondriacism.

The occupations of business suitable to their circumstances and situation in life, if neither attended with emotion, anxiety, nor fatigue, are always to be admitted, and persisted in by hypochondriacs. But occupations upon which a man's fortune depends, and which are always, therefore, objects of anxiety to melancholic men; and more particularly where such occupations are exposed to accidental interruptions, disappointments, and failures, it is from these that the hypochondriac is certainly to be withdrawn.—" We know that nothing is upon occasions more powerful in debilitating, as we speak, in enervating the system, and inducing the debility peculiar to hypochondriasis, than close application to study; and let it be observed, that wherever this circumstance of the application of the mind takes place, it is stronger as the application is confined to one or to a few objects only; and as the natural tendency of the melancholic temperament is to attach itself to one object, that very application is an aggravation to the disease, and so is industriously to be avoided."

MCCXLVII. The hypochondriac, who is not necessarily, by circumstances or habits, engaged in business, is to be drawn from his attention to his own feelings, by some amusement.

The various kinds of sport and hunting, as pursued with some ardour, and attended with exercise, if not too violent, are among the most useful.

All those amusements which are in the open air, joined with moderate exercise, and requiring some dexterity, are generally of use.

Within doors, company which engages attention, which is willingly yielded to, and is at the same time of a cheerful kind, will be always found of great service.

Play, in which some skill is required, and where the stake is not an object of much anxiety, if not too long protracted, may often be admitted.

In dyspeptics, however, gaming, liable to sudden and considerable emotions, is dangerous; and the long continuance of it, with night-watching, is violently debilitating. But in melancholics, who commonly excel in skill, and are less susceptible of violent emotions, it is more admissible, and is often the only amusement that can engage them.

Music, to a nice ear, is a hazardous amusement, as long attention to it is very fatiguing.

MCCXLVIII. It frequently happens, that amusements of every kind are rejected by hypochondriacs; and in that case, mechanical means of interrupting thought are the remedies to be sought for.

Such is to be found in brisk exercise, which requires some attention in the conduct of it.

Walking is seldom of this kind—though, as gratifying to the restlessness of hypochondriacs, it has sometimes been found useful.

The required interruption of thought is best obtained by riding on horseback, or in driving a carriage of any kind.

The exercise of sailing, except it be in an open boat, engaging some attention, does very little service.

Exercise in an easy carriage, in the direction of which the traveller takes no part, unless it be upon rough roads, or driven pretty quickly, and with long continuance, is of little advantage.

MCCXLIX. Whatever exercise may be employed, it will be most effectual when employed in the pursuit of a journey; first, because it withdraws a person from many objects of uneasiness and care which might present themselves at home; secondly, as it engages in more constant exercise, and in a greater degree of it than is commonly taken in airings about home; and lastly, as it is constantly presenting new objects which call forth a person's attention.

MCCL. In our system of Nosology we have, next to Hypochondriasis, placed the Chlorosis, because I once thought it might be considered as a genus, comprehending, besides the Chlorosis of Amenorrhœa, some species of Cachexy ; but as I cannot find this to be well founded, and cannot distinctly point out any such disease, I now omit considering Chlorosis as a genus here; and as a symptom of Amenorrhœa, I have endeavoured before to explain it under that title.

BOOK III.

OF SPASMODIC AFFECTIONS, WITHOUT FEVER.

MCCLI. Under this title I am to comprehend all the diseases which consist *in motu abnormi;* that is, in a preternatural state of the contraction and motion of the muscular or moving fibres in any part of the body.

"You will observe, that, in the systems of Nosology, the term Spasm, or what is analogous to it, is applied only to the irregular motion of muscles strictly so called, namely, those employed in voluntary motion. I could not admit it in this manner, and said, therefore, *musculorum vel fibrarum muscularium motus abnormes,*—comprehending the animal, vital, and natural functions. Another part of this character, the *motus abnormis,* is a general term, and may be not well understood. I meant it to express, in a very general sense, *præter naturam, præter solitum,* any thing unusual; which may therefore be called preternatural in the action of the muscles or muscular fibres. I must perhaps give some explanation of this.

"The organs of voluntary motion are those under the influence of the will, and by the laws of the system in health not moved but by the power of the will: whenever, therefore, they are moved involuntarily, by any other cause, it is an attempt of the *motus abnormis.* But the term applies to other modes of motion. In every person the motions which are more steadily exercised have a certain degree of velocity, varied precisely by the direction of the will; if, therefore, at any time the velocity of the motion is greater than the will directs, this also is to be called a *motus abnormis.*"

MCCLII. It will hence appear why, under this title, I have comprehended many more diseases than Sauvages and Sagar have comprehended under the title of Spasmi, or than Linnæus has done under the title of Motorii. But I expect it will be obvious, that, upon this occasion, it would not be proper to confine our view to the affections of voluntary motion only; and, if those Nosologists have introduced into the class of Spasmi, Palpitatio, and Hysteria, it will be with equal propriety that Asthma, Colica, and many other diseases, are admitted.

MCCLIII. It has been hitherto the method of our Nosologists to divide the Spasmi into the two orders of Tonici and Clonici, Spastici and Agitatorii; or, as many at present use the terms, into Spasms strictly so called, and Convulsions. I find, however, that many, and indeed most of the diseases to be considered under our title of Spasmodic Affections, in respect of Tonic or Clonic contractions, are of a mixed kind; and, therefore, I cannot follow the usual general division; but have attempted another, by arranging the several Spasmodic Diseases according as they affect the several functions, Animal, Vital, or Natural.

SECT. I.—OF THE SPASMODIC AFFECTIONS OF THE ANIMAL FUNCTIONS.

MCCLIV. Agreeable to the language of the ancients, the whole of the diseases to be treated of in this section might be termed Spasmi; and many of the moderns continue to apply the term in the same manner: but I think it convenient to distinguish the terms of Spasm and Convulsion, by applying the former strictly to what has been called the Tonic, and the latter to what has been called the Clonic Spasm. There is certainly a foundation for the use of those different terms, as there is a remarkable difference in the state of contraction of moving fibres upon different occasions. This I have indeed pointed out before in my treatise of Physiology (CX.—CXII.), but must also repeat it here.

MCCLV. In the exercise of the several functions of the animal economy, the contractions of the moving fibres are excited by the will, or by certain other causes specially appointed by nature for exciting those contractions; and these other causes I name the *natural causes*. In a state of health, the moving fibres are contracted by the power of the will, and by the *natural causes* only. At the same time, the contractions produced are, in force and velocity, regulated by the will, or by the circumstances of the natural causes; and the contractions, whether produced by the one or the other, are always soon succeeded by a state of relaxation, and are not repeated, but when the power of the will or of the natural causes is again applied.

MCCLVI. Such are the conditions of the action of the moving fibres in a state of health; but in a morbid state, the contractions of the muscles and moving fibres ordinarily depending upon the will, are excited without the concurrence of the will, or contrary to what the will intends; and in the other functions, they are excited by the action of unusual and unnatural causes. In both cases, the contractions produced may be in two different states. The one is, when the contractions are to a more violent degree than is usual in health, and are neither succeeded by a spontaneous relaxation, nor even readily yield to an extension, either from the action of antagonist muscles, or from other extending powers applied. This state of contraction is what has been called a *Tonic Spasm*, and is what I shall name simply and strictly a *Spasm*. The other morbid state of contraction is, when they are succeeded by a relaxation, but are immediately again repeated without the concurrence of the will, or of the repetition of natural causes, and are at the same time commonly, with respect to velocity and force, more violent than in a healthy state. This state of morbid contraction is what has been named a *Clonic Spasm*, and what I shall name simply and strictly a *Convulsion*.

In this section, I shall follow nearly the usual division of the spasmodic diseases, into those consisting in Spasm, and those consisting in Convulsion; but it may not, perhaps, be in my power to follow such division exactly.

CHAP. I.—OF TETANUS.

MCCLVII. Both Nosologists and Practical Writers have distinguished Tetanic complaints into the several species of Tetanus, Opisthotonos, and Emprosthotonos; and I have in my Nosology put the Trismus, or Locked Jaw, as a genus distinct from the Tetanus. All this, however, I now judge to be improper; and am of opinion, that all the several terms mentioned denote, and are applicable only to different degrees of one and the same disease; the history and cure of which I shall endeavour to deliver in this chapter.

MCCLVIII. Tetanic complaints may, from certain causes, occur in every climate that we are acquainted with; but they occur most frequently in the warmest climates, and most commonly in the warmest seasons of such climates. These complaints affect all ages, sexes, temperaments, and complexions. The causes from whence they commonly proceed, are cold and moisture applied to the body while it is very warm, and especially the sudden vicissitudes of heat and cold. Or the disease is produced by punctures, lacerations, or other lesions of nerves in any part of the body. There are, probably, some other causes of this disease; but they are neither distinctly known, nor well ascertained. Though the causes mentioned do, upon occasion, affect all sorts of persons, they seem, however, to attack persons of a middle age more frequently than the older or younger, the male sex more frequently than the female, and the robust and vigorous more frequently than the weaker.

MCCLIX. If the disease proceed from cold, it commonly comes on in a few days after the application of such cold; but, if it arise from a puncture or other lesion of a nerve, the disease does not commonly come on for many days after the lesion has happened, very often when there is neither pain nor uneasiness remaining in the wounded or hurt part, and very frequently when the wound has been entirely healed up.

MCCLX. The disease sometimes comes on suddenly to a violent degree, but more generally it approaches by slow degrees to its violent state. In this case it comes on with a sense of stiffness in the back part of the neck, which, gradually increasing, renders the motion of the head difficult and painful. As the rigidity of the neck comes on and increases, there is commonly at the same time a sense of uneasiness felt about the root of the tongue ; which, by degrees, becomes a difficulty of swallowing, and at length an entire interruption of it. While the rigidity of the neck goes on increasing, there arises a pain, often violent, at the lower end of the sternum, and from thence shooting into the back. When this pain arises, all the muscles of the neck, and particularly those of the back part of it, are immediately affected with spasm, pulling the head strongly backwards. At the same time, the muscles that pull up the lower jaw, which, upon the first approaches of the disease, were affected with some spastic rigidity, are now generally affected with more violent spasm, and set the teeth so closely together, that they do not admit of the smallest opening.

This is what has been named the *Locked Jaw*, and is often the principal part of the disease. When the disease has advanced thus far, the pain at the bottom of the sternum returns very frequently, and with it the spasms of the hind neck and lower jaw are renewed with violence and much pain. As the disease thus proceeds, a greater number of muscles come to be affected with spasms. After those of the neck, those along the whole of the spine become affected, bending the trunk of the body strongly backwards; and this is what has been named the *Opisthotonos.*

In the lower extremities, both the flexor and extensor muscles are commonly at the same time affected, and keep the limbs rigidly extended. Though the extensors of the head and back are usually the most strongly affected, yet the flexors, or those muscles of the neck that pull the head forwards, and the muscles that should pull down the lower jaw, are often at the same time strongly affected with spasm. During the whole of the disease, the abdominal muscles are violently affected with spasm, so that the belly is strongly retracted, and feels hard as a piece of board.

At length the flexors of the head and trunk become so strongly affected as to balance the extensors, and to keep the head and trunk straight, and rigidly extended, incapable of being moved in any way; and it is to this state the term of *Tetanus* has been strictly applied. At the same time, the arms, little affected before, are now rigidly extended; the whole of the muscles belonging to them being affected with spasms, except those that move the fingers, which often to the last retain some mobility. The tongue also long retains its mobility; but at length it also becomes affected with spasms, which, attacking certain of its muscles only, often thrust it violently out between the teeth.

At the height of the disease, every organ of voluntary motion seems to be affected; and among the rest the muscles of the face. The forehead is drawn up into furrows; the eyes, sometimes distorted, are commonly rigid, and immoveable in their sockets; the nose is drawn up, and the cheeks are drawn backwards towards the ears, so that the whole countenance expresses the most violent grinning. Under these universal spasms, a violent convulsion commonly comes on, and puts an end to life.

MCCLXI. These spasms are every where attended with most violent pains. The utmost violence of spasm is, however, not constant; but, after subsisting for a minute or two, the muscles admit of some remission of their contraction, although of no such relaxation as can allow the action of their antagonists. This remission of contraction gives also some remission of pain; but neither is of long duration. From time to time, the violent contractions and pains are renewed, sometimes every ten or fifteen minutes, and that often without any evident exciting cause. But such exciting causes frequently occur; for almost every attempt to motion, as attempting a change of posture, endeavouring to swallow, and even to speak, sometimes gives occasion to a renewal of the spasms over the whole body.

MCCLXII. The attacks of this disease are seldom attended with any fever. When the spasms are general and violent, the pulse is contracted, hurried, and irregular; and the respiration is affected in like manner: but, during the remission, both the pulse and respiration usually return to their natural state. The heat of the body is commonly not increased; frequently the face is pale, with a cold sweat upon it; and very often the extremities are cold, with a cold sweat over the whole body. When, however, the spasms are frequent and violent, the pulse is sometimes more full and frequent than natural; the face is flushed, and a warm sweat is forced out over the whole body.

MCCLXIII. Although fever be not a constant attendant of this disease, especially when arising from a lesion of nerves; yet, in those cases proceeding from cold, a fever sometimes has supervened, and is said to have been attended with inflammatory symptoms. Blood has been often drawn in this disease, but it never exhibits any inflammatory crust; and all accounts seem to agree, that the blood drawn seems to be of a looser texture than ordinary, and that it does not coagulate in the usual manner.

MCCLXIV. In this disease the head is seldom affected with delirium, or even confusion of thought, till the last stage of it; when, by the repeated shocks of a violent distemper, every function of the system is greatly disordered.

MCCLXV. It is no less extraordinary, that, in this violent disease, the natural functions are not either immediately or considerably affected. Vomitings sometimes appear early in the disease, but commonly they are not continued; and it is usual enough for the appetite of hunger to remain through the whole course of the disease; and what food happens to be taken down seems to be regularly enough digested. The excretions are sometimes affected, but not always. The urine is sometimes suppressed, or is voided with difficulty and pain. The belly is costive: but, as we have hardly any accounts excepting of those cases in which opiates have been largely employed, it is uncertain whether the costiveness has been the effect of the opiates or of the disease. In several instances of this disease, a miliary eruption has appeared upon the skin; but whether this be a symptom of the disease, or the effect of a certain treatment of it, is undetermined. In the meanwhile, it has not been observed to denote either safety or danger, or to have any effect in changing the course of the distemper.

MCCLXVI. This disease has generally proved fatal; and this indeed may be justly supposed to be the consequence of its nature: but, as we know that, till very lately, physicians were not well acquainted with a proper method of cure; and that, since a more proper method has been known and practised, many have recovered from this disease; it may be therefore concluded, that the fatal tendency of it is not so unavoidable as has been imagined.

In judging of the tendency of this disease, in particular cases, we may remark, that, when arising from lesions of the nerves, it is commonly more violent, and of more difficult cure than when proceeding from cold; that the disease which comes on suddenly, and advances quickly to a violent degree, is always more dangerous than that which is slower in its progress. Accordingly, the disease often proves fatal before the fourth day; and when a patient has passed this period, he may be supposed to be in greater safety, and in general the disease is the safer the longer it has continued. It is, however, to be particularly observed, that, even for many days after the fourth, the disease continues to be dangerous; and, even after some considerable abatement of its force, it is ready to recur again with its former violence and danger. It never admits of any sudden, or what may be called a critical solution; but always recedes by degrees only, and it is often very long before the whole of the symptoms disappear.

MCCLXVII. From the history of the disease now described, it will be evident that there is no room for distinguishing the *tetanus*, *opisthotonos*, and *trismus* or *locked jaw*, as different species of this disease, since they all arise from the same causes, and are almost constantly conjoined in the same person. I have no doubt that the *emprosthotonos* belongs also to the same genus; and as the ancients have frequently mentioned it, we can have no doubt of its having occurred: but, at the same time, it is certainly in these days a rare occurrence; and, as I have never seen it, nor find any histories in which this particular state of the spasm is said to have prevailed, I cannot mention the other circumstances which particularly attend it, and may distinguish it from other varieties of tetanic complaints.

MCCLXVIII. This disease has put on still a different form from any of those above mentioned. The spasms have been sometimes confined to one side of the body only, bending it strongly to that side. This is what has been named by Sauvages the *Tetanus lateralis*, and by some late writers the *Pleurosthotonos*. This form of the disease has certainly appeared very seldom; and in any of the accounts given of it, I cannot find any circumstances that would lead me to consider it as any other than a variety of the species already mentioned, or to take further notice of it here.

MCCLXIX. The pathology of this disease I cannot in any measure attempt; as the structure of moving fibres, the state of them under different degrees of contraction, and particularly the state of the sensorium, as variously determining the motion of the nervous power, are all matters very imperfectly or not at all known to me. In such a situation, therefore, the endeavouring to give any rules of practice, upon a scientific plan, appears to me vain and fruitless; and towards directing the cure of this disease, we must be satisfied with having learned something useful from analogy, confirmed by experience.

MCCLXX. When the disease is known to arise from the lesion of a nerve in any part of the body, the first, and, as I judge, the most important step to be taken towards the cure, is, by every possible means, to cut off that part from all communication with the sensorium, either by cutting through the nerves in their course, or perhaps by destroying, to a certain length, their affected part or extremity.

MCCLXXI. When the cure of the disease is to be attempted by medicine, experience has taught us, that opium has often proved an effectual remedy; but that to render it such, it must be given in much larger quantities than have been employed in any other case; and, in these larger quantities, it may, in this disease, be given more safely than the body has been known to bear in any other condition. The practice has been, to give the opium either in a solid or a liquid form, not in any very large dose at once, but in moderate doses, frequently repeated, at the interval of one, two, three, or more hours, as the violence of the symptoms seems to require. Even when large quantities have been given in this way, it appears that the opium does not operate here in the same manner as in most other cases; for, though it procure some remisssion of the spasms and pains, it hardly induces any sleep, or occasions that stupor, intoxication, or delirium, which it often does in other circumstances, when much smaller quantities only have been given. It is therefore very properly observed, that, in tetanic affections, as the opium shows none of those effects by which it may endanger life, there is little or no reason for being sparing in the exhibition of it; and it may be given, probably should be given, as largely and as fast as the symptoms of the disease may seem to demand.

It is particularly to be observed, that, though the first exhibitions of the opium may have produced some remission of the symptoms, yet the effects of opium do not long continue in the system; and this disease being for some time ready to recur, it is commonly very necessary, by the time that the effects of the opium given may be supposed to be wearing off, and especially upon the least appearance of a return of the spasms, to repeat the exhibition of the opium in the same quantities as before. This practice is to be continued while the disease continues to show any disposition to return; and it is only after the disease has already subsisted for some time, and when considerable and long-continued remissions have taken place, that the doses of the opium may be diminished, and the intervals of exhibiting them be more considerable.

"As spasmodic affections are so often begun by an increased excitement of the energy of the brain, so opium being the most powerful means of diminishing its excitement, it must very often be the most certain and ready means of both obviating and curing spasmodic affections; but, at the same time, we must remark, that it often fails to answer either purpose. If the increased excitement arises from an irritation applied to a particular part of the body, to the removal of which opium cannot contribute, the disease may continue to recur, although the largest doses of opium have been employed. Thus it happens in tetanus, from wounds whose communications with the brain cannot be intercepted, that opium often fails to prove a cure.—*M. M.*

MCCLXXII. The administering of opium in this manner has, in many cases, been successful; and probably would have been equally so in many others, if the opium had not been too sparingly employed, either from the timidity of practitioners, or from its exhibition being prevented by that interruption of deglutition which so often attends this disease. This latter circumstance directs, that the medicine should be immediately and largely employed upon the first approach of the disease, before the deglutition becomes difficult; or that, if this opportunity be lost, the medicine, in sufficient quantity, and with due frequency, should be thrown into the body by glyster; which, however, does not seem to have been hitherto often practised.

MCCLXXIII. It is highly probable, that, in this disease, the intestines are affected with the spasm that prevails so much in other parts of the system; and, therefore, that costiveness occurs here as a symptom of the disease. It is probably also increased by the opium, which is here so largely employed; and, from whichever of these causes it arises, it certainly must be held to aggravate the disease; and that a relaxation of the intestinal canal will contribute to a relaxation of the spasms elsewhere. This consideration directs the frequent exhibition of laxatives while the power of deglutition remains, or the frequent exhibition of glysters when it does not; and the good effects of both have been frequently observed.

MCCLXXIV. It has been with some probability supposed, that the operation of opium in this disease may be much assisted by joining with it some other of the most powerful antispasmodics. The most promising are musk and camphire; and some practitioners have been of opinion that the former has proved very useful in tetanic complaints. But whether it be from its not having been employed of a genuine kind, or in sufficient quantity, the great advantage and propriety of its use are not yet clearly ascertained. It appears to me probable, that, analogous to what happens with respect to opium, both musk and camphire might be employed in this disease in much larger quantities than they commonly have been in other cases.

MCCLXXV. Warm bathing has been commonly employed as a remedy in this disease, and often with advantage; but, so far as I know, it has not alone proved a cure; and in some cases, whether it be from the motion of the body here required, exciting the spasms, or from the fear of the bath, which some persons were seized with, I cannot determine; but it is allowed that the warm bath hath in some cases done harm, and even occasioned death. Partial fomentations have been much commended, and I believe upon good grounds; and I have no doubt but that fomentations of the feet and legs, as we now usually apply them in fevers, might, without much stirring of the patient, be very assiduously employed with advantage.

MCCLXXVI. Unctuous applications were very frequently employed in this disease by the ancients; and some modern practitioners have considered them as very useful. Their effects, however, have not appeared to be considerable; and, as a weak auxiliary only, attended with some inconvenience, they have been very much neglected by the British practitioners.

MCCLXXVII. Bleeding has been formerly employed in this disease; but, of late, it has been found prejudicial, excepting in a few cases, where, in plethoric habits, a fever has supervened. In general, the state of men's bodies in warm climates is unfavourable to blood-letting. And, if we may form indications from the state of the blood drawn out of the veins, the state of this in tetanic diseases would forbid bleeding in them.

MCCLXXVIII. Blistering also has been formerly employed in this disease; but several practitioners assert, that blisters are constantly hurtful, and they are now generally omitted.

MCCLXXIX. These are the practices that hitherto have been generally employed; but, of late, we are informed by several West India practitioners, that, in many instances, they have employed mercury with great advantage. We are told that it must be employed early in the disease; that it is most conveniently administered by unction, and should be applied in that way in large quantities, so that the body may be soon filled with it, and a salivation raised, which is to be continued till the symptoms yield. Whether this method alone be generally sufficient for the cure of the disease, or if it may be assisted by the use of opium, and require this in a certain measure to be joined with it, I have not yet certainly learned.

MCCLXXX. I have been further informed, that the tetanus, in all its different degrees, has been cured by giving internally the Pisselæum Barbadense, or, as it is vulgarly called, the Barbadoes Tar. I think it proper to take notice of this here, although I am not exactly informed what quantities of this medicine are to be given, or in what circumstances of the disease it is most properly to be employed.

In the former edition of this work, among the remedies of tetanus, I did not mention the use of cold bathing; because, though I had heard of this, I was not informed of such frequent employment of it as might confirm my opinion of its general efficacy; nor was I sufficiently informed of the ordinary and proper administration of it. But now, from the information of many judicious practitioners who have frequently employed it, I can say that it is a remedy which, in numerous trials, has been found to be of great service in this disease; and that, while the use of the ambiguous remedy of warm bathing is entirely laid aside, the use of cold bathing is over the whole of the West Indies commonly employed. The administration of it is sometimes by bathing the person in the sea, or more frequently by throwing cold water from a bason or bucket upon the patient's body, and over the whole of it. When this is done, the body is carefully wiped dry, wrapped in blankets, and laid a-bed, and, at the same time, a large dose of an opiate is given. By these means a considerable remission of the symptoms is obtained; but this remission at first does not commonly remain long, but returning again in a few hours, the repetition both of the bathing and the opiate becomes necessary. By these repetitions, however, longer intervals of ease are obtained, and at length the disease is entirely cured; and this even happens sometimes very quickly. I have only to add, that it does not appear to me, from any accounts I have yet had, that the cold bathing has been so frequently employed, or has been found so commonly successful in the cases of tetanus in consequence of wounds, as in those from the application of cold.

MCCLXXXI. Before concluding this chapter, it is proper for me to take some notice of that peculiar case of the tetanus, or trismus, which attacks certain infants soon after their birth, and has been properly enough named the Trismus Nascentium. From the subjects it affects, it seems to be a peculiar disease: for these are infants not above two weeks, and commonly before they are nine days old; insomuch that, in countries where the disease is frequent, if children pass the period now mentioned, they are considered as secure against its attacks. The symptom of it chiefly taken notice of is the trismus, or locked jaw, which is, by the vulgar, improperly named the Falling of the

Jaw. But this is not the only symptom, as, for the most part, it has all the same symptoms as the Opisthotonos and Tetanus strictly so called, and which occur in the other varieties of tetanic complaints above described. Like the other varieties of tetanus, this is most frequent in warm climates; but it is not like those arising from the application of cold, entirely confined to such warm climates, as instances of it have occurred in most of the northern countries of Europe. In these latter it seems to be more frequent in certain districts than in others; but in what manner limited I cannot determine. It seems to be more frequent in Switzerland than in France. I am informed of its frequently occurring in the Highlands of Scotland; but I have never met with any instance of it in the low country. The particular causes of it are not well known; and various conjectures have been offered, but none of them are satisfying. It is a disease that has been almost constantly fatal, and this, also, commonly in the course of a few days. The women are so much persuaded of its inevitable fatality, that they seldom or never call for the assistance of our art. This has occasioned our being little acquainted with the history of the disease, or with the effects of remedies in it. Analogy, however, would lead us to employ the same remedies that have proved useful in the other cases of tetanus; and the few experiments that are yet recorded seem to approve of such a practice.

CHAP. II.—OF EPILEPSY.

MCCLXXXII. In what sense I use the term *Convulsion*, I have explained above in MCCLVI.

The convulsions that affect the human body are in several respects various; but I am to consider here only the chief and most frequent form in which they appear, and which is in the disease named *Epilepsy*. This may be defined as consisting in convulsions of the greater part of the muscles of voluntary motion, attended with a loss of sense, and ending in a state of insensibility and seeming sleep.

MCCLXXXIII. The general form or principal circumstances of this disease are much the same in all the different persons whom it affects. It comes by fits, which often attack persons seemingly in perfect health; and, after lasting for some time, pass off, and leave the persons again in their usual state. These fits are sometimes preceded by certain symptoms, which, to persons who have before experienced such a fit, may give notice of its approach, as we shall hereafter explain; but even these preludes do not commonly occur long before the formal attack, which in most cases comes on suddenly without any such warning.

The person attacked loses suddenly all sense and power of motion; so that, if standing, he falls immediately, or perhaps, with convulsions, is thrown to the ground. In that situation, he is agitated with violent convulsions, variously moving his limbs and the trunk of his body. Commonly the limbs on one side of the body are more violently or more considerably agitated than those upon the other. In all cases, the muscles of the face and eyes are much affected, exhibiting various and violent distortions of the countenance. The tongue is often affected, and thrust out of the mouth; while the muscles of the lower jaw are also affected; and, shutting the mouth with violence while the tongue is thrust out between the teeth, that is often grievously wounded.

While these convulsions continue, there is commonly, at the same time, a frothy moisture issuing from the mouth. These convulsions have for some moments some remissions, but are suddenly again renewed with great violence. Generally, after no long time, the convulsions cease altogether; and the person for some time remains without motion, but in a state of absolute insensibility, and under the appearance of a profound sleep. After some continuance of this seeming sleep, the person sometimes suddenly, but for the most part by degrees only, recovers his senses and power of motion; but without any memory of what had passed from his being first seized with the fit. During the convulsions, the pulse and respiration are hurried and irregular; but, when the convulsions cease, they return to their usual regularity and healthy state.

“ In a case which I observed, the heart was, before the fit came on, affected with palpitations, but this is not to be considered as singular; for I believe, that in every epileptic paroxysm the heart is affected in the same manner, though the violent convulsions in the voluntary organs prevent its being taken notice of; and I could bring proofs that the whole arterial system, and therefore the heart, is so affected. In hysteric paroxysms the affection of the heart is commonly very evident, and we may presume that in all general spasmodic affections it must be the case."

This is the general form of the disease; and it varies only in different persons, or on different occasions in the same person, by the phenomena mentioned being more or less violent, or by their being of longer or shorter duration.

" In inquiring into the proximate cause, we must observe, that we enter upon the most difficult part of the animal pathology. The suddenness of the attack without evident cause; the universality and vehemence of the agitation without sensation; the variety and irregularity of the phenomena, have always struck with astonishment and horror, and given occasion to refer the whole to supernatural powers; and the natural superstition of men has been greatly increased by the artifices of a misguided religion, while it has not been in the power of philosophy to give relief.

" The terror of eclipses can be easily removed by an explanation of their causes, and, in proof, by a prediction; but philosophy has done little towards explaining or foretelling epilepsy. Shall we attempt either therefore? I do it with hesitation, because we cannot go far in it, but I hope to go the length of influencing practice. We shall at least be no worse than on an empirical footing, which is still much at random, and as seldom successful as we can be on our theory.

" Objections are always strongest to a new theory: but where empiricism does nothing, theory is allowable, and there is a temptation to it. There is no danger when it is employed with caution, when we distinguish between the *ignis fatuus* and a steady light, when this light gives a general direction, and is not trusted to by the way where we may be stopt by a wall, or arrested by a quagmire. With these cautions we proceed. I deal, I own, in what I call *theory*, but not in that which is commonly called theory, which proceeds from hypothesis. All that I mean by theory, is, to find out certain facts which lead to some general conclusion, as a fact which may be a foundation for practice. Without that I cannot proceed; but please to take notice, that I always mean that the theory should be a single result from facts which are certain."

MCCLXXXIV. With respect to the proximate cause of this disease, I might say, that it is an affection of the energy of the brain, which, ordinarily under the direction of the will, is here, without any concurrence of it, impelled by preternatural causes. But, I could go no farther: For, as to what is the mechanical condition of the brain in the ordinary exertions of the will, I have no distinct knowledge; and therefore must be also ignorant of the preternatural state of the same energy of the brain under the irregular motions here produced. To form, therefore, the indications of a cure, from a knowledge of the proximate cause of this disease, I must not attempt; but, from a diligent attention to the remote causes which first induce and occasionally excite the disease, I think we may often obtain some useful directions for its cure. It shall therefore be my business now to point out and enumerate these remote causes as well as I can.

MCCLXXXV. The remote causes of epilepsy may be considered as occasional or predisponent. There are, indeed, certain remote causes which act independently of any predisposition; but, as we cannot always distinguish these from the others, I shall consider the whole under the usual titles of *Occasional* or *Predisponent*.

MCCLXXXVI. The occasional causes may, I think, be properly referred to two general heads; the *first* being of those which seem to act by directly stimulating and exciting the energy of the brain; and the *second* of those which seem to act by weakening the same. With respect to both, for the brevity of expressing a fact, without meaning to explain the manner in which it is brought about, I shall use the terms of *Excitement* and *Collapse*.—(See Physiology, CXXX.) And, though it be true, that, with respect to some of the causes I am to mention, it may be a little uncertain whether they act in the one way or the other, that does not render it improper for us to mark, with respect to others, the mode of their operating, wherever we can do it clearly, as the doing so may often be of use in directing our practice.

MCCLXXXVII. First, then, of the occasional causes acting by excitement: they are either such as act immediately and directly upon the brain itself; or those which are first applied to the other parts of the body, and are from thence communicated to the brain.

MCCLXXXVIII. The causes of excitement immediately and directly applied to the brain, may be referred to the four heads of,

1. Mechanical Stimulants;
2. Chemical Stimulants;
3. Mental Stimulants; and,
4. The peculiar Stimulus of Over-distention.

MCCLXXXIX. The mechanical stimulants may be, wounding instruments penetrating the cranium, and entering the substance of the brain; or splinters of a fractured cranium operating in the same manner; or sharp-pointed ossifications, either arising from the internal surface of the cranium, or formed in the membranes of the brain.

MCCXC. The chemical stimulants (MCCLXXXVIII.) may be fluids from various causes lodged in certain parts of the brain, and become acrid by stagnation, or otherwise.—" It has been frequent, upon dissections of epileptics, to find abscesses, or effusions, containing fluids manifestly vitiated, and justly suspected of peculiar acrimony. These have accordingly, and perhaps properly, been considered as the cause of the epilepsy which attended; but we must not arrive at this conclusion too rashly. It is to me probable, that these abscesses and effusions often depend upon the previous foundations of tumours, or previous states of inflammation, or increased impetus; and we find, that this, independently of any peculiarity in the nature of the matter, can produce epilepsy."

MCCXCI. The mental irritations acting by excitement, are all violent emotions of the active kind, such as joy and anger. The first of these is manifestly an exciting power acting strongly and immediately on the energy of the brain.—" And indeed it acts manifestly upon the nervous system almost alone."—The second is manifestly, also, a power acting in the same manner. But it must be remarked, that it is not in this manner alone anger produces its effects; for it acts also strongly on the sanguiferous system, and may be a means of giving the stimulus of over-distention, as, under a fit of anger, the blood is impelled into the vessels of the head with violence, and in a larger quantity.

MCCXCII. Under the head of Mental Irritations, is to be mentioned, the sight of persons in a fit of epilepsy, which has often produced a fit of the like kind in the spectator. It may, indeed, be a question, whether this effect be imputable to the horror produced by a sight of the seemingly painful agitations of the limbs, and of the distortions in the countenance of the epileptic person, or if it may be ascribed to the force of imitation merely? It is possible that horror may sometimes produce the effect; but certainly much may be imputed to that propensity to imitation, at all times so powerful and prevalent in human nature, and so often operating in other cases of convulsive disorders, which do not present any spectacle of horror.—"I say, since the days of Aristotle, every observer of mankind has agreed, that man is a ζῶον μιμητικὸν, an imitating animal. We have innumerable proofs of this, which might be referred to. Thus, we have a case recorded, of a man who involuntarily assumed the very gesture of the person to whom he was speaking. We are especially under this influence in all cases of more violent exertions of motion. Thus, I have often coughed when another person coughed; and I cannot help vomiting when I see another person straining and vomiting: this will sufficiently account for imitation, as a means of producing epilepsy, and as the frequent occasion of its spreading."

MCCXCIII. Under the same head of Mental Irritation, I think proper to mention, as an instance of it, the Epilepsia simulata, or the feigned Epilepsy, so often taken notice of Although this, at first, may be entirely feigned, I have no doubt but that the repetition renders it at length real. The history of Quietism and of Exorcisms leads me to this opinion; and which receives a confirmation from what we know of the power of imagination, in renewing epileptic and hysteric fits.

"In many instances which I have myself known, the fits are certainly entirely counterfeited, and not real; but I am certain that, in many other cases, they are not what may be called *simulati*, but really and truly epileptic. I would not enter into a detail of circumstances, but I would say, that the power of imagination is greater than we can conceive. A person may have had epilepsy brought on at first by a natural cause; but it is certain that a number of people can by the recollection of certain ideas, by the power of their own imagination, throw themselves into a real epileptic fit, and they will give proofs by an absolute insensibility, that it is sufficiently real, although there is little doubt that they can bring it on. It is of consequence in the conduct of this disease, to observe, that, indeed, it is frequently renewed by certain affections of the mind. It would lead me very far to illustrate the power of imagination in other cases, and how often the renewal of certain circumstances of our body depends merely upon certain circumstances of imagination. One of the most remarkable instances, perhaps, is the recollection of lascivious scenes and circumstances, acting powerfully on the vesiculæ seminales.

" The following story also is a good illustration of this subject. The lady of a particular acquaintance of mine was with child, and on account of the increase of bulk, found it necessary to have her gowns let out. The mantua-maker came home to fit one on: this required the lady to stand on her feet, and as there are many circumstances which occasion sick fits to women with child, so such a fit seized this lady at this time: she was obliged to have the operation of the mantua-maker interrupted; she was sick and vomited; next day the business of the mantua-maker was attempted again, but no sooner had she stood up, and was put into the same condition, than the same fit returned, which interrupted them: the day after the mantua-maker returned again, but now the very sight of the gown caused sickness to the lady. It was laid aside and thrown into a closet, and upon several occasions afterwards, the going into the closet brought back all the symptoms of sickness and vomiting; nor could she bear the sight of that gown until she was delivered of her child, after which she was not so much under the power of imagination. This is an evident proof, that a little recollection of circumstances which happens to be associated with the sick fit, serves, by the influence of imagination, to renew it. I know a person who upon the mention of ipecacuanha was seized with sickness and nausea: and a thousand such instances are mentioned in the records of physic; so that patients of delicate imagination are to be treated with suitable delicacy."

MCCXCIV. I come now to the fourth head of the irritations applied immediately to the brain, and which I apprehend to be that of the over-distention of the blood-vessels in that organ. That such a cause operates in producing epilepsy, is probable from this, that the dissection of persons dead of epilepsy has commonly discovered the marks of a previous congestion in the blood-vessels of the brain. This, perhaps, may be supposed the effect of the fit which proved fatal: but that the congestion was previous thereto, is probable from the epilepsy being so often joined with headach, mania, palsy, and apoplexy; all of them diseases depending upon a congestion in the vessels of the brain. The general opinion receives also confirmation from this circumstance, that, in the brain of persons dead of epilepsy, there have been often found tumours and effusions, which, though seemingly not sufficient to produce those diseases which depend on the compression of a considerable portion of the brain, may, however, have been sufficient to compress so many vessels as to render the others, upon any occasion of a more than usual turgescence, or impulse of the blood into the vessels of the brain, liable to an over-distention.

MCCXCV. These considerations alone might afford foundation for a probable conjecture with respect to the effects of over-distention. But the opinion does not rest upon conjecture alone. That it is also founded on fact, appears from hence, that a plethoric state is favourable to epilepsy; and that every occasional turgescence, or unusual impulse of the blood into the vessels of the brain, such as a fit of anger, the heat of the sun, or of a warm chamber, violent exercise, a surfeit, or a fit of intoxication, are frequently the immediate exciting causes of epileptic fits.

MCCXCVI. I venture to remark further, that a piece of theory may be admitted as a confirmation of this doctrine. As I have formerly maintained, that a certain fullness and tension of the vessels of the brain is necessary to the support of its ordinary and constant energy, in the distribution of the nervous power, so it must be sufficiently probable that an over-distention of these blood-vessels may be a cause of violent excitement.

"It will be found that this distention produces epilepsy, not in operating by compression, but by a peculiar irritation and increase of excitement. It must therefore be considered in a different light from what is more properly called compression by blood or serum, which we find attending cases of epilepsy. It is difficult to say if this does operate, and how it operates; but when epilepsy precedes palsy, we do not necessarily infer a compression, but merely a congestion, some degree of hæmorrhagic impetus, which may produce epilepsy by irritation; and only in consequence of this same congestion being frequently repeated, it at length produces the effusion which acts directly by compression, and induces palsy. Nay, I can suppose another case in which epilepsy may produce palsy without the existence of compression: I have said that epilepsy sometimes arises from collapse, and at last that permanent degree of collapse may take place on which palsy depends. Although, therefore, the combination of the two diseases, epilepsy and palsy, leads to suspect a compression, yet, when the epilepsy is succeeded by palsy, no conclusion follows that it originally depended upon compression; when, on the other hand, epilepsy supervenes upon palsy, the conclusion that it depends upon compression, is much more probable, although we should not be able to explain the fact. I have a clear proof of it in this, that I find epilepsy succeeding upon hydropic palsy or apoplexy. Although I have no doubt, therefore, that compression is necessarily taken in in the enumeration of causes of epilepsy, I have difficulty in saying how it operates: the most probable account is, that the compression acts as other partial compressions do, by giving an obstruction, which will readily occasion that turgescence in the other parts of the brain that so readily produces epilepsy."

MCCXCVII. We have now enumerated the several remote or occasional causes of epilepsy, acting by excitement, and acting immediately upon the brain itself. Of the causes acting by excitement, but acting upon other parts of the body, and from thence communicated to the brain, they are all of them impressions producing an exquisite or high degree either of pleasure or pain.

Impressions which produce neither the one nor the other, have hardly any such effects, unless when such impressions are in a violent degree; and then their operation may be considered as a mode of pain. It is, however, to be remarked, that all strong impressions which are sudden and surprising, or, in other words, unforeseen and unexpected, have frequently the effect of bringing on epileptic fits.—"In speaking of impressions, I have considered them as causes of pain. But another impression, quite peculiar in this case, is that of titillation, which is very slight, but being attended with frequent oscillations, has a singular power with regard to our body. Every body knows its power of producing convulsions to a certain degree, and these will even amount to epilepsy: I will not say whether this impression is to be referred to the general head of pleasure, but, attending to our theory, it will lead to somewhat of the same doctrine with regard to the irregularity in the succession of motions in our brain."

MCCXCVIII. There are certain impressions made upon different parts of the body, which, as they often operate without producing any sensation, so it is uncertain to what head they belong; but it is probable that the greater part of them act by excitement, and therefore fall to be mentioned here. The chief instances are, the teething of infants; worms; acidity, or other acrimony in the alimentary canal; calculi in the kidneys—("we have two or three cases of this kind in Lieutaud, where nothing else was found");—acrid matter in abscesses or ulcers; or acrimony diffused in the mass of blood, as in the case of some contagions.—"Among the poisons disposing to epilepsy, is to be reckoned the smallpox contagion, acting as a stimulus. It is rarely of sufficient power, except in infants; but in these it frequently kills, which it may do merely by the repetition of epilepsy; and there is so much hazard of it as to render it imprudent to throw that poison into young infants by inoculation. That epilepsy is often a symptom of benign smallpox is to be imputed to this, that it is a proof of a lax and irritable system, not liable therefore to any violent spasm on the surface which may detain the variolous matter in the skin."

MCCXCIX. Physicians have found no difficulty in comprehending how direct stimulants, of a certain force, may excite the action of the brain and occasion epilepsy; but they have hitherto taken little notice of certain causes which manifestly weaken the energy of the brain, and act, as I speak, by collapse. These, however, have the effect of exciting the action of the brain in such a manner as to occasion epilepsy. I might, upon this subject, speak of the *vis medicatrix naturæ;* and there is a foundation for the term: but, as I do not admit the Stahlian doctrine of an administering soul, I make use of the term only as expressing a fact, and would not employ it with the view of conveying an explanation of the manner in which the powers of collapse mechanically produce their effects. In the mean time, however, I maintain, that there are certain powers of collapse, which in effect prove stimulants, and produce epilepsy.

MCCC. That there are such powers, which may be termed Indirect Stimulants, I conclude from hence, that several of the causes of epilepsy are such as frequently produce syncope, which we suppose always to depend upon causes weakening the energy of the brain (MCLXXVI.). It may give some difficulty to explain why the same causes sometimes occasion syncope, and sometimes occasion the reaction that appears in epilepsy; and I shall not attempt to explain it: but this, I think, does not prevent my supposing that the operation of these causes is by collapse. That there are such causes producing epilepsy, will, I think, appear very clearly from the particular examples of them I am now to mention.

MCCCI. The first to be mentioned, which I suppose to be of this kind, is hæmorrhagy, whether spontaneous or artificial. That the same hæmorrhagy which produces syncope often at the same time produces epilepsy, is well known; and, from many experiments and observations, it appears, that hæmorrhagies occurring to such a degree as to prove mortal, seldom do so without first producing epilepsy.

MCCCII. Another cause, acting, as I suppose, by collapse, and therefore sometimes producing syncope and sometimes epilepsy, is terror; that is, the fear of some great evil suddenly presented. As this produces at the same time a sudden and considerable emotion (MCLXXX.), so it more frequently produces epilepsy than syncope.

MCCCIII. A third cause acting by collapse, and producing epilepsy, is horror; or a strong aversion suddenly raised by a very disagreeable sensation, and frequently arising from a sympathy with the pain or danger of another person. As horror is often a cause of syncope, there can be no doubt of its manner of operating in producing epilepsy; and it may perhaps be explained upon this general principle, That, as desire excites action and gives activity, so aversion restrains from action, that is, weakens the energy of the brain; and, therefore, that the higher degrees of aversion may have the effects of producing syncope or epilepsy.

MCCCIV. A fourth set of the causes of epilepsy, which I suppose also to act by collapse, are certain odours, which occasion either syncope or epilepsy; and, with respect to the former, I have given my reasons (MCLXXXII.) for supposing odours in that case to act rather as disagreeable than as sedative. These reasons will, I think, also apply here; and perhaps the whole affair of odours might be considered as instances of the effect of horror, and therefore belonging to the last head.

"With respect to those odours, it might be suspected, that they act by a directly sedative power, but that cannot be admitted, because their operation on the most part of men is directly stimulant; but it must be referred to a strongly disagreeable sensation, which, when producing no reaction, causes syncope, but with reaction in particular persons, causes hysteria and epilepsy.

"Here it is to be observed, that although in general it is odours which give the most disagreeable sensations, yet it is probable, that the stomach also possesses a sensibility liable to be affected with impressions merely as disagreeable; and thence the aversion towards particular foods in certain persons producing nausea, vomiting, syncope, and epilepsy."

MCCCV. A fifth head of the causes producing epilepsy by collapse, is the operation of many substances considered, and for the most part properly considered, as poisons. Many of these, before they prove mortal, occasion epilepsy. This effect, indeed, may in some cases be referred to the inflammatory operation which they sometimes discover in the stomach and other parts of the alimentary canal; but, as the greater part of the vegetable poisons show chiefly a narcotic, or strongly sedative power, it is probably by this power that they produce epilepsy, and therefore belong to this head of the causes acting by collapse.—" I allege that this consequence frequently arises when no inflammatory state of the stomach appears: and so far as I can perceive, the substances are frequently known to be narcotics, and to act by producing a collapse."

MCCCVI. Under the head of the remote causes producing epilepsy, we must now mention that peculiar one whose operation is accompanied with what is called the *Aura Epileptica.* This is a sensation of something moving in some part of the limbs or trunk of the body, and from thence creeping upwards to the head; and, when it arrives there, the person is immediately deprived of sense, and falls into an epileptic fit. This motion is described by the persons feeling it, sometimes as a cold vapour, sometimes as a fluid gliding, and sometimes as the sense of a small insect creeping along their body; and very often they can give no distinct idea of their sensation, otherwise than as in general of something moving along. This sensation might be supposed to arise from some affection of the extremity or other part of a nerve acted upon by some irritating matter; and that the sensation, therefore, followed the course of such a nerve: but I have never found it following distinctly the course of any nerve; and it generally seems to pass along the teguments. It has been found in some instances to arise from something pressing upon or irritating a particular nerve, and that sometimes in consequence of contusion or wound: but instances of these are more rare; and the more common consequence of contusions and wounds is a tetanus. This latter effect wounds produce, without giving any sensation of an aura or other kind of motion proceeding from the wounded part to the head; while, on the other hand, the aura producing epilepsy often arises from a part which had never before been affected with wound or contusion, and in which part the nature of the irritation can seldom be discovered.

It is natural to imagine, that this aura epileptica is an evidence of some irritation or direct stimulus acting on the part, and from thence communicated to the brain, and should therefore have been mentioned among the causes acting by excitement; but the remarkable difference that occurs in seemingly like causes producing tetanus, gives some doubt on this subject.

MCCCVII. Having now enumerated the occasional causes of epilepsy, I proceed to consider the predisponent. As so many of the above-mentioned causes act upon certain persons, and not at all upon others, there must be supposed in those persons a predisposition to this disease. But in what this predisposition consists, is not to be easily ascertained.

" Now I do not say that epilepsy always depends on a predisponent cause. There are causes sufficiently powerful to excite it in every person, and in every kind of constitution, but the existence of a predisponent cause is more commonly probable."

MCCCVIII. As many of the occasional causes are weak impressions, and are applied to most persons with little or no effect, I conclude, that the persons affected by those causes are more easily moved than others; and therefore that, in this case, a certain mobility gives the predisposition. It will, perhaps, make this matter clearer, to show, in the first place, that there is a greater mobility of constitution in some persons than in others.

MCCCIX. This mobility appears most clearly in the state of the mind. If a person is readily elated by hope, and as readily depressed by fear, and passes easily and quickly from the one state to the other; if he is easily pleased, and prone to gaiety, and as easily provoked to anger, and rendered peevish; if liable, from slight impressions, to strong emotions, but tenacious of none; this is the boyish temperament, *qui colligit ac ponit iram temere, et mutatur in horas;* this is the *varium et mutabile fœmina;* and, both in the boy and woman, every one perceives and acknowledges a mobility of mind. But this is necessarily connected with an analogous state of the brain; that is, with a mobility in respect of every impression, and therefore liable to a ready alternation of excitement and collapse, and of both to a considerable degree.

MCCCX. There is, therefore, in certain persons, a mobility of constitution, generally derived from the state of original stamina, and more exquisite at a certain period of life than at others;

but sometimes arising from, and particularly modified by occurrences in the course of life.

MCCCXI. This mobility consists in a greater degree of either sensibility or irritability. These conditions, indeed, physicians consider as so necessarily connected, that the constitution, with respect to them, may be considered as one and the same. But I am of opinion that they are different; and that mobility may sometimes depend upon an increase of the one, and sometimes on that of the other. If an action excited, is, by repetition, rendered more easily excited, and more vigorously performed, I consider this as an increase of irritability only. I go no farther on this subject here, as it was only necessary to take notice of the case just now mentioned, for the purpose of explaining why epilepsy, and convulsions of all kinds, by being repeated, are more easily excited, readily become habitual, and are therefore of more difficult cure.

MCCCXII. However we may apply the distinction of sensibility and irritability, it appears that the mobility, which is the predisponent cause of epilepsy, depends more particularly upon debility, or upon a plethoric state of the body.

MCCCXIII. What share debility, perhaps by inducing sensibility, has in this matter, appears clearly from hence, that children, women, and other persons of manifest debility, are the most frequent subjects of this disease.

MCCCXIV. The effect of a plethoric state in disposing to this disease appears from hence, that plethoric persons are frequently the subjects of it; that it is commonly excited, as I have said above, by the cause of any unusual turgescence of the blood; and that it has been frequently cured by diminishing the plethoric state of the body.

That a plethoric state of the body should dispose to this disease, we may undertand from several considerations.

1*st*, Because a plethoric state implies, for the most part, a laxity of the solids, and therefore some debility in the moving fibres.

2*dly*, Because, in a plethoric state, the tone of the moving fibres depends more upon their tension than upon their inherent power: and, as their tension depends upon the quantity and impetus of the fluids in the blood-vessels, which are very changeable, and by many causes frequently changed, so these changes must give a mobility to the system.

3dly, Because a plethoric state is favourable to a congestion of blood in the vessels of the brain, it must render these more readily affected by every general turgescence of the blood in the system, and therefore more especially dispose to this disease.

"The temperament particularly predisposed to epilepsy is not marked,—from certain causes every temperament is liable to it. Such are the various stimuli, and the only difference here is, that they operate according to the sensibility; and hence children are affected by teething and worms, which would not affect grown persons.

"But in adults there is a peculiar temperament; for every plethoric state, and even every determination to the brain does not necessarily produce epilepsy.

"There is a constitution in which epilepsy more especially happens, and it is the melancholic, with black and crisped hair, a sallow brown complexion, and torpid dull look. There is certainly some variety, but from much observation I conclude that the temperament described is very general, and particularly in those in whom the disease arises from fear."

MCCCXV. There is another circumstance of the body disposed to epilepsy, which I cannot so well account for; and that is, the state of sleep: But, whether I can account for it or not, it appears, in fact, that this state gives the disposition I speak of; for, in many persons liable to this disease, the fits happen only in the time of sleep, or immediately upon the person's coming out of it. In a case related by De Haen, it appeared clearly, that the disposition to epilepsy depended entirely upon the state of the body in sleep.

MCCCXVI. Having thus considered the whole of the remote causes of epilepsy, I proceed to treat of its cure, as I have said it is from the consideration of these remote causes only that we can obtain any directions for our practice in this disease.

I begin with observing, that, as the disease may be considered as sympathic or idiopathic, I must treat of these separately, and judge it proper to begin with the former.

MCCCXVII. When this disease is truly sympathic, and depending upon a primary affection in some other part of the body, such as acidity or worms in the alimentary canal, teething, or other similar causes, it is obvious that such primary affections must be removed for the cure of the epilepsy; but it is not our business here to say how these primary diseases are to be treated.

MCCCXVIII. There is, however, a peculiar case of sympathic epilepsy; that is, the case accompanied with the *aura epileptica*, as described in MCCCVI., in which, though we can perceive by the *aura epileptica* arising from a particular part, that there is some affection of that part; yet, as in many such cases we cannot perceive of what nature the affection is, I can only offer the following general directions:—

1*st*, When the part can with safety be entirely destroyed, we should endeavour to do so by cutting it out, or by destroying it, by the application of an actual or potential cautery.

2*dly*, When the part cannot be properly destroyed, that we should endeavour to correct the morbid affection in it by blistering, or by establishing an issue upon the part.

3*dly*, When these measures cannot be executed, or do not succeed, if the disease seems to proceed from the extremity of a particular nerve which we can easily come at in its course, it will be proper to cut through that nerve, as before proposed on the subject of tetanus.

4*thly*, When it cannot be perceived that the *aura* arises from any precise place or point, so as to direct to the above-mentioned operations; but, at the same time, we can perceive its progress along the limb; it frequently happens that the epilepsy can be prevented by a ligature applied upon the limb, above the part from which the *aura* arises. And this is always proper to be done, both because the preventing a fit breaks the habit of the disease, and because the frequent compression renders the nerves less fit to propagate the *aura*.

" *Prognosis*. I have only to say, that this must occur to you, from the consideration of the various causes I have mentioned. The circumstance, how far they are accessible to art, must determine how far the disease is curable. We cannot cure an exostosis in the cavity of the cranium; we have very little power in affecting the causes of the stagnation which may occur there, or in changing what has been a long established habit in the animal economy. We have therefore, in the most frequent cases of epilepsy, very little power within the reach of our art. We are not to doubt therefore immediately of the efficacy of a remedy which has been reported as successful, although it fails in a particular instance."

MCCCXIX. The cure of idiopathic epilepsy, as I have said above, is to be directed by our knowledge of the remote causes. There are therefore two general indications to be formed: the first is, to avoid the occasional causes; and the second is, to remove or correct the predisponent.

This method, however, is not always purely palliative; as in many cases the predisponent may be considered as the only proximate cause, so our second indication may be often considered as properly curative.

MCCCXX. From the enumeration given above, it will be manifest, that, for the most part, the occasional causes, so far as they are in our power, need only to be known in order to be avoided; and the means of doing this will be sufficiently obvious. I shall here, therefore, offer only a few remarks.

MCCCXXI. One of the most frequent of the occasional causes is that of over-distention (MCCCXIV.), which, so far as it depends upon a plethoric state of the system, I shall say hereafter how it is to be avoided. But as, not only in the plethoric, but in every moveable constitution, occasional turgescence is a frequent means of exciting epilepsy, the avoiding therefore of such turgescence is what ought to be most constantly the object of attention to persons liable to epilepsy.

MCCCXXII. Another of the most frequent exciting causes of this disease, are, all strong impressions suddenly made upon the senses; for, as such impressions, in moveable constitutions, break in upon the usual force, velocity, and order of the motions of the nervous system, they thereby readily produce epilepsy. Such impressions, therefore, and especially those which are suited to excite any emotion or passion of the mind, are to be most carefully guarded against by persons liable to epilepsy

MCCCXXIII. In many cases of epilepsy, where the predisponent cause cannot be corrected or removed, the recurrence. of the disease can only be prevented by the strictest attention to avoid the occasional; and as the disease is often confirmed by repetition and habit, so the avoiding the frequent recurrence of it is of the utmost importance towards its cure.

These are the few remarks I have to offer with respect to the occasional causes; and I must now observe, that, for the most part, the complete, or, as it is called, the Radical Cure, is only to be obtained by removing or correcting the predisponent cause.

MCCCXXIV. I have said above, that the predisponent cause of epilepsy is a certain mobility of the sensorium; and that this depends upon a plethoric state of the system, or upon a certain state of debility in it.

MCCCXXV. How the plethoric state of the system is to be corrected, I have treated of fully above in DCCLXXXIII. *et seq.*, and I need not repeat it here. It will be enough to say, that it is chiefly to be done by a proper management of exercise and diet; and, with respect to the latter, it is particularly to be observed here, that an abstemious course has been frequently found to be the most certain means of curing epilepsy.—"I have had several instances myself, both in young and in older persons, where a very great degree of abstinence entirely cured the disease, or rendered its return far less frequent than it was before: and when the abstinence was not rigidly enough observed, or other causes of fullness or turgescence happened to be applied, it has again returned."

MCCCXXVI. Considering the nature of the matter poured out by issues, these may be supposed to be a constant means of obviating the plethoric state of the system; and it is perhaps therefore that they have been so often found useful in epilepsy. Possibly also, as an open issue may be a means of determining occasional turgescences to such places, and therefore of diverting them in some measure from their action upon the brain, so also, in this manner, issues may be useful in epilepsy.—"I have had occasion to remark the different forms of issues, and I would say that the perpetual blister never appeared to me a sufficiently considerable evacuation to answer the purpose of which I have spoken. Nor is a pea issue easily rendered such. The seton certainly can give the most considerable evacuation."

MCCCXXVII. It might be supposed that blood-letting would be the most effectual means of correcting the plethoric state of the system; and such it certainly proves when the plethoric state has become considerable, and immediately threatens morbid effects. It is therefore, in such circumstances, proper and necessary: but, as we have said above, that blood-letting is not the proper means of obviating a recurrence of the plethoric state, and, on the contrary, is often the means of favouring it; so it is not a remedy advisable in every circumstance of epilepsy. There is, however, a case of epilepsy, in which there is a periodical or occasional recurrence of the fulness and turgescence of the sanguiferous system, giving occasion to a recurrence of the disease. In such cases, when the means of preventing plethora have been neglected, or may have proved ineffectual, it is absolutely necessary for the practitioner to watch the returns of these turgescences, and to obviate their effects by the only certain means of doing it, that is, by a large blood-letting.

MCCCXXVIII. The second cause of mobility which we have assigned, is a state of debility. If this is owing, as it frequently is, to original conformation, it is perhaps not possible to cure it; but when it has been brought on in the course of life, it possibly may admit of being mended; and in either case, much may be done to obviate and prevent its effects.

MCCCXXIX. The means of correcting debility, so far as it can be done, are, the person's being much in cool air; the frequent use of cold bathing; the use of exercise, adapted to the strength and habits of the person; and perhaps the use of astringent and tonic medicines.

These remedies are suited to strengthen the inherent power of the solids, or moving fibres; but as the strength of these depends also upon their tension, so, when debility has proceeded from inanition, the strength may be restored by restoring the fulness and tension of the vessels by a nourishing diet; and we have had instances of the propriety and success of such a practice.

"There are certainly many cases of epilepsy from inanition; and those which depend upon hæmorrhagies, or long-continued evacuations, are of that kind. Accordingly their treatment has been found to depend upon filling the body. I must own, though I have given no such caution hitherto, that possibly the practice for obviating plethora, which I have insisted upon, may, upon occasions, be pushed so far as to support the epilepsy from inanition. I have a fact which makes it necessary to attend to this. A gentleman, a pupil of mine, was liable to epilepsy; and from several observations on the recurrence of the fits, I had reason to believe that a turgescence, or partial plethora, had a share in bringing back the disease. I accordingly practised blood-letting, to which he had been accustomed, but I especially recommended strict abstinence, which had manifestly good effects in rendering the disease less frequent; but, in spite of all remedies, it did occur, so as to excite a sort of despair in expecting relief from the measures which we pursued. Some years after this, he removed from this country to his own home in England, and there, necessarily engaged among his friends, he was under some temptation of taking a more full diet, and more wine than formerly. He found no bad effects from it, and came at last to live in the manner of ordinary people. He has had no return of epilepsy for some years, and is now a practitioner of some eminence. This was a plain proof that he suffered from the inanition, or that the disease depended more upon the mobility of the system than we were aware of."

MCCCXXX. The means of obviating the effects of debility, and of the mobility depending upon it, are the use of tonic and antispasmodic remedies. The tonics are, Fear, or some degree of terror; astringents; certain vegetable and metallic tonics; and cold bathing.

"That fear or terror, according to its kind or degree, acts very differently, is well known. There is no doubt of its being in general enervating, of its being a sedative power which immediately weakens the whole animal power; yet we find, that, in a moderate degree, it operates merely as a tonic. I leave you to reconcile the theory; but we have many proofs of convulsive motions obviated by fear, which we cannot explain in any other way. So the common practice in hiccup is, to alarm children with some grounds of fear; we have also other cases of convulsive motions cured by it. Dr. Willis tells us, that he cured many children of hiccup by setting them into a mill-hopper, where there was a constant alternate motion, with considerable knockings, which stopped the return of those convulsive motions. The higher degree of fear, however, discovers its great powers as a sedative; for we know its producing palsy, apoplexy, syncope, and death itself, where it appears to produce no reaction.

"These are the effects of fear on the nervous system; but it operates also on the sanguiferous system, in as far as it causes a suspension of the action of the arteries, and a stagnation in these, or the corresponding parts of the vascular system. It readily induces a habit, and occasions a return at particular times, producing epilepsy in that manner.

"I have a case particularly illustrating this subject, which deserves to be noticed. A gentleman suffered shipwreck, being very long in danger, and at last escaping from it in a surprising manner. This struck him with a very strong fear and terror, but had not the effect of immediately producing epilepsy, which, however, not long after, recurred from time to time. It was difficult to find the remote cause, but the fit generally came with a hemicrania, which affected the eye with considerable inflammation and with marks of accumulating distention in the corresponding vessels. I immediately directed measures to obviate the return of the plethoric state, enjoining all the means that I thought most probable, particularly blood-letting, as soon as the marks of congestion appeared. The fits of epilepsy were avoided, and a very considerable interval occurred before they returned; but I had not pushed my measures far enough. Another practitioner came in, and he was, in consequence of a conversation with me, fully convinced of the propriety of my views; he practised blood-letting to a very considerable degree, so as to bring on *deliquium animi;* and indeed he ventured to repeat it with the effect of a perfect and entire cure for the last ten years. I have had success in several parallel cases, which have confirmed me sufficiently in it."

MCCCXXXI. That fear, or some degree of terror, may be of use in preventing epilepsy, we have a remarkable proof in Boerhaave's cure of the epilepsy, which happened in the orphan-house at Haerlem. See Kaaw Boerhaave's treatise, entitled *Impetum Faciens*, § 406. And we have met with several other instances of the same.

As the operation of horror is, in many respects, analogous to that of terror, several seemingly superstitious remedies have been employed for the cure of epilepsy; and if they have ever been successful, I think it must be imputed to the horror they had inspired.

MCCCXXXII. Of the astringent medicines used for the cure of epilepsy, the most celebrated is the *Viscus quercinus*, which, when given in large quantities, may possibly be useful; but I believe it was more especially so in ancient times, when it was an object of superstition. In the few instances in which I have seen it employed, it did not prove of any effect.

MCCCXXXIII. Among the vegetable tonics, the bitters are to be reckoned; and it is by this quality that I suppose the orange-tree leaves to have been useful. But they are not always so.

MCCCXXXIV. The vegetable tonic, which, from its use in analogous cases, is the most promising, is the Peruvian bark; this, upon occasion, has been useful, but has also often failed. It is especially adapted to those epilepsies which recur at certain periods, and which are at the same time without the recurrence of any plethoric state, or turgescence of the blood; and, in such periodical cases, if the bark is employed some time before the expected recurrence, it may be useful; but it must be given in large quantity, and as near to the time of the expected return as possible.—" Only when epilepsy depends upon a mobility of the system, we can expect the bark to prove a remedy. And in such cases it may possibly have often proved useful; but I have hardly found it to be so, and am of opinion, that the fossil tonics, as chalybeates, cuprum ammoniacum, flowers of zinc, or white vitriol, are always found more effectual.—*M.M.*

MCCCXXXV. The metallic tonics seem to be more powerful than the vegetable, and a great variety of the former have been employed.

Even arsenic has been employed in the cure of epilepsy; and its use in intermittent fevers gives an analogy in its favour.

Preparations of tin have been formerly recommended in the cure of epilepsy, and in the cure of the analogous disease of hysteria; and several considerations render the virtues of tin, with respect to these diseases, probable. But I have had no experience of its use in such cases.

A much safer metallic tonic is to be found in the preparations of iron; and we have seen some of them employed in the cure of epilepsy, but have never found them to be effectual. This, however, I think, may be imputed to their not having been always employed in the circumstances of the disease, and in the quantities of the medicine, that were proper and necessary.

MCCCXXXVI. Of the metallic tonics, the most celebrated and the most frequently employed is copper, under various preparation. What preparation of it may be the most effectual, I dare not determine; but of late the *Cuprum ammoniacum* has been frequently found successful.

"The combination of copper with an ammoniacal salt, I learned from the Acta Natur. Curios., and first introduced it into the practice of this country; and it now stands in our dispensatory under the title of *Cuprum ammoniacum.* In many instances it has proved a cure of epilepsy, and thereby discovered its astringent and tonic powers. It is employed by beginning with small doses of half a grain, and increasing these by degrees to what the stomach will bear. I find it commonly more manageable than the blue vitriol; and in many instances have carried the dose to five grains, and in some still further. In many cases it has proved a cure of epilepsy: but in many others it has entirely failed in being such. When in the course of a month it has not shewn any good effects, I desist from its further use, as I suspect that large quantities of copper introduced, may, like lead, prove hurtful to the body: and therefore, in cases of periodical epilepsy, after giving the medicine constantly during one interval, if the disease still continues, I afterwards give the medicine only for some days before an expected accession; and in this manner I have had success.—*M.M.*

MCCCXXXVII. Lately the flowers of zinc have been recommended by a great authority as useful in all convulsive disorders; but in cases of epilepsy, I have not hitherto found that medicine useful.—"In my own practice, I have not found the flowers of zinc of remarkable benefit, nor do I find my fellow-practitioners giving a more favourable report; and in consequence, the employment of them in practice here becomes less and less every day.—*M.M.*

MCCCXXXVIII. There have been of late some instances of the cure of epilepsy by the accidental use of mercury; and, if the late accounts of the cure of tetanus by this remedy are confirmed, it will allow us to think that the same may be adapted also to the cure of certain cases of epilepsy.

MCCCXXXIX. With respect to the employment of any of the above-mentioned tonics in this disease, it must be observed, that, in all cases where the disease depends upon a constant or occasional plethoric state of the system, these remedies are likely to be ineffectual; and, if sufficient evacuations are not made at the same time, these medicines are likely to be very hurtful.

MCCCXL. The other set of medicines which we have mentioned as suited to obviate the effects of the too great mobility of the system, are the medicines named *Antispasmodics.* Of these there is a long list in the writers on the Materia Medica, and by these authors recommended for the cure of epilepsy. The greater part, however, of those taken from the vegetable kingdom, are manifestly inert and insignificant. Even the root of the wild valerian hardly supports its credit.—" The antispasmodic powers of valerian, in general, are well established; but it seems to me, that in almost all cases, it should be given in larger doses than is commonly done. On this footing I have frequently found it useful in epileptic, hysteric, and other spasmodic affections. It seems to be most useful when given in substance, and in large doses; I have never found much benefit from the infusion in water.—*M.M.*

MCCCXLI. Certain substances taken from the animal kingdom seem to be much more powerful: and of these the chief, and seemingly the most powerful, is musk; which, employed in its genuine state, and in due quantity, has often been an effectual remedy.—" Musk seems to be adapted to those cases of convulsive disorders, which are cured by opiates; and indeed the success I have generally had with these has prevented my having further experience of the musk.

" I had once a gentleman affected with a spasm of the pharynx, preventing deglutition, and almost respiration. This, when other remedies had failed, was relieved by the use of musk, which often shewed its power; for the disease continued to recur at times for some years after, and was only obviated or relieved by the use of the musk."

It is probable also, that the *Oleum animale*, as it has been named, when in its purest state, and exhibited at a proper time, may be an effectual remedy.

MCCCXLII. In many diseases, the most powerful antispasmodic is certainly opium; but the propriety of its use in epilepsy has been disputed among physicians. When the disease depends upon a plethoric state, in which bleeding may be necessary, the employment of opium is likely to be very hurtful; but when there is no plethoric or inflammatory state present, and the disease seems to depend upon irritation, or upon increased irritability, opium is likely to prove the most certain remedy. Whatever effects in this and other convulsive disorders have been attributed to the hyoscyamus, must probably be attributed to its possessing a narcotic power similar to that of opium.

"It is here to be observed, that epileptic fits very frequently occur from an occasional turgescence of the blood in the vessels of the brain: and from frequent trials, I know that opium will not prevent such fits, but, if exhibited, will bring them on with more violence.

"It is in epilepsies arising from irritation applied to the nervous system, in which opium promises to be useful: and when the returns of such fits are anywise periodical, or nearly so, opium, given a little before the times of accession, has been often useful in preventing the recurrence. In many instances, however, the returns of epilepsy are irregular; and, in such cases, the frequent use of opium, either by producing an occasional turgescence of the blood, or by increasing the mobility of the system, is often very hurtful.

"As instances of epilepsy depending upon irritation applied to the nervous system, I consider all those depending upon an *aura epileptica:* and in several cases of this kind, where the times of accession could be foreseen, and even when the symptoms announcing it had come on, I have found opium an effectual remedy.

"Though I have not known an epilepsy entirely cured by camphire alone; yet I have had several instances of a paroxysm which was expected in the course of a night, prevented by a dose of camphire exhibited at bed-time; and even this, when the camphire was given alone: but it has been especially useful when given with a dose of cuprum ammoniacum, of white vitriol, or of the flowers of zinc.—*M.M.*

MCCCXLIII. With respect to the use of antispasmodics, it is to be observed, that they are always most useful, and perhaps only useful, when employed at a time when epileptic fits are frequently recurring, or near to the times of the accession of fits, which recur after considerable intervals.

MCCCXLIV. On the subject of the cure of epilepsy, I have only to add, that as the disease in many cases is continued by the power of habit only, and that, in all cases, habit has a great share in increasing mobility, and therefore in continuing this disease; so the breaking in upon such habit, and changing the whole habits of the system, is likely to be a powerful remedy in epilepsy. Accordingly, a considerable change of climate, diet, and other circumstances in the manner of life, has often proved a cure of this disease.

MCCCXLV. After treating of epilepsy, I might here treat of particular convulsions, which are to be distinguished from epilepsy by their being more partial: that is, affecting certain parts of the body only; and by their not being attended with a loss of sense, nor ending in such a comatose state as epilepsy always does.

MCCCXLVI. Of such convulsive affections many different instances have been observed and recorded by physicians. But many of these have been manifestly sympathic affections, to be cured only by curing the primary disease upon which they depend, and therefore not to be treated of here: Or, though they are such as cannot be referred to another disease, as many of them, however, have not any specific character with which they occur in different persons, I must, therefore, leave them to be treated upon the general principles I have laid down with respect to epilepsy, or shall lay down with respect to the following convulsive disorder, which, as having very constantly, in different persons, a peculiar character, I think necessary to treat of more particularly.

CHAP. III.—OF THE CHOREA, OR DANCE OF ST. VITUS.

MCCCXLVII. This disease affects both sexes, and almost only young persons. It generally happens from the age of ten to that of fourteen years. It comes on always before the age of puberty, and rarely continues beyond that period.

MCCCXLVIII. It is chiefly marked by convulsive motions, somewhat varied in different persons, but nearly of one kind in all; affecting the leg and arm on the same side, and generally on one side only.

MCCCXLIX. These convulsive motions commonly first affect the leg and foot. Though the limb be at rest, the foot is often agitated by convulsive motions, turning it alternately outwards and inwards. When walking is attempted, the affected leg is seldom lifted as usual in walking, but is dragged along as if the whole limb were paralytic; and, when it is attempted to be lifted, this motion is unsteadily performed, the limb becoming agitated by irregular convulsive motions.

MCCCL. The arm of the same side is generally affected at the same time; and even when no voluntary motion is attempted, the arm is frequently agitated with various convulsive motions. But, especially when voluntary motions are attempted, these are not properly executed, but are variously hurried or interrupted by convulsive motions in a direction contrary to that intended. The most common instance of this is in the person's attempting to carry a cup of liquor to his mouth, when it is only after repeated efforts, interrupted by frequent convulsive retractions and deviations, that the cup can be carried to the mouth.

MCCCLI. It appears to me, that the will often yields to these convulsive motions, as to a propensity, and thereby they are often increased, while the person affected seems pleased with increasing the surprise and amusement which his motions occasion in the bystanders.

MCCCLII. In this disease, the mind is often affected with some degree of fatuity; and often shows the same varied, desultory, and causeless emotions which occur in hysteria.

MCCCLIII. These are the most common circumstances of this disease; but, at times, and in different persons, it is varied by some difference in the convulsive motions, particularly by those affecting the head and trunk of the body. As in this disease there seem to be propensities to motion, so various fits of leaping and running occur in the persons affected; and there have been instances of this disease, consisting of such convulsive motions appearing as an epidemic in a certain corner of the country. In such instances, persons of different ages are affected, and may seem to make an exception to the general rule above laid down; but still the persons are, for the most part, the young of both sexes, and of the more manifestly moveable constitutions.

"In this fashion, it generally attacks both sexes at a particular time of life, from ten years of age to sixteen; sometimes it appears earlier, sometimes it subsists longer; but it is generally limited to that, or to a still narrower period, from twelve to fourteen. Now this circumstance gives us a degree of theory which will apply to the cure. It may be considered in two ways: 1. From a view of the sanguiferous system; till the system is in its several parts fully evolved, there is no considerable tension or firmness in the whole. Now the full evolution of all parts of the system takes place at the age of puberty, at which time the genital system is evolved. Only at the age of puberty, therefore, does the system acquire any degree of tension and firmness; but towards its approach, that is, within a few years of puberty, the cause of evolution being little steady, now more intense and then more remiss, occasions a fluctuation of the balance of the system, and a state of the mobility which lays a foundation to these convulsive disorders. 2. From a view to the nervous system. We observe that the state of the genitals, in both sexes, has a considerable influence upon the whole nervous system, particularly in giving it a state of tension or tone;

and the evolution, being also less steady and regular in the operation of its causes on the nervous system, as it approaches to puberty, may give the mobility which lays the foundation of convulsive disorders.

"Both of these circumstances of evolution take place, at least in the female sex: both may have a share, and in different cases in different proportions; and this is the only foundation on which we can discuss the method of cure."

MCCCLIV. The method of curing this disease has been variously proposed. Dr. Sydenham proposed to cure it by alternate bleeding and purging. In some plethoric habits, I have found some bleeding useful; but, in many cases, I have found repeated evacuations, especially by bleeding, very hurtful.

In many cases, I have found the disease, in spite of remedies of all kinds, continue for many months; but I have also found it often readily yield to tonic remedies, such as the Peruvian bark, and chalybeates.

The late Dr. De Haen found several persons labouring under this disease cured by the application of electricity.

"Sauvages gives several instances of cures performed by blood-letting, and some by bleeding and purging; and I have found both to have good effects in rendering the cure of the disease more easy. But I found that my patients would generally bear the repetition of purging better than that of blood-letting, which I consider as owing to the state of the primæ viæ, or some debility occurring that produces costiveness, which in this, as in all other cases, it is necessary to obviate pretty constantly. But after these evacuations have been practised, more or less according to circumstances, I have been in use to depend on the bark, and have hardly in any instance failed obtaining a cure. In some I found no remedy of any effect at all. The disease would sometimes subsist for a year or two, till the system, arriving at more firmness, gradually allowed it to to be removed."

"In this disease, I think the preparations of copper and zinc cannot be employed with safety so often, or rather so long, as might be necessary; and therefore chalybeates and bark are the safer remedies: and we are of opinion that the latter is more safe than the former.

"We can say from a good deal of experience, that opiates have been very generally useful in the cure of this disease.—*M.M.*

SECT. II.—OF THE SPASMODIC AFFECTIONS OF THE VITAL FUNCTIONS.

CHAP. IV.*—OF THE PALPITATION OF THE HEART.

MCCCLV. The motion thus named is a contraction or systole of the heart, that is performed with more rapidity, and generally also with more force than usual; and when at the same time the heart strikes with more than usual violence against the inside of the ribs, producing often a considerable sound.

MCCCLVI. This motion or palpitation is occasioned by a great variety of causes, which have been recited with great pains by Mr. Senac, and others; whom, however, I cannot follow in all the particulars with sufficient discernment, and therefore shall here only attempt to refer all the several cases of this disease to a few general heads.

MCCCLVII. The first is of those arising from the application of the usual stimulus to the heart's contraction; that is, the influx of the venous blood into its cavities, being made with more velocity, and therefore, in the same time, in greater quantity than usual. It seems to be in this manner that violent exercise occasions palpitation.

MCCCLVIII. A second head of the cases of palpitation, is of those arising from any resistance given to the free and entire evacuation of the ventricles of the heart. Thus, a ligature made upon the aorta, occasions palpitations of the most violent kind. Similar resistances, either in the aorta or pulmonary artery, may be readily imagined; and such have been often found in the dead bodies of persons, who, during life, had been much affected with palpitations.

To this head are to be referred all those cases of palpitation arising from causes producing an accumulation of blood in the great vessels near to the heart.

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* Though I have thought it proper to divide this book into sections, I think it necessary, for the convenience of references, to number the chapters from the beginning.

MCCCLIX. A third head of the cases of palpitation, is of those arising from a more violent and rapid influx of the nervous power into the muscular fibres of the heart. It is in this manner that I suppose various causes acting in the brain, and particularly certain emotions of the mind, occasion palpitation.

MCCCLX. A fourth head of the cases of palpitation, is of those arising from causes producing a weakness in the action of the heart, by diminishing the energy of the brain with respect to it. That such causes operate in producing palpitation, I presume from hence, that all the several causes mentioned above (MCLXXVII, *et seq.)*, as in this manner producing syncope, do often produce palpitation. It is on this ground that these two diseases are affections frequently occurring in the same person, as the same causes may occasion the one or the other, according to the force of the cause and mobility of the person acted upon. It seems to be a law of the human economy, that a degree of debility occurring in any function often produces a more vigorous exertion of the same, or at least an effort towards it, and that commonly in a convulsive manner.

I apprehend it to be the convulsive action, frequently ending in some degree of a spasm, that gives occasion to the intermittent pulse so frequently accompanying palpitation.

MCCCLXI. A fifth head of the cases of palpitation may perhaps be of those arising from a peculiar irritability or mobility of the heart. This, indeed, may be considered as a predisponent cause only, giving occasion to the action of the greater part of the causes recited above. But it is proper to observe, that this predisposition is often the chief part of the remote cause; insomuch, that many of the causes producing palpitation would not have this effect but in persons peculiarly predisposed. This head, therefore, of the cases of palpitation, often requires to be distinguished from all the rest.

MCCCLXII. After thus marking the several cases and causes of palpitation, I think it necessary, with a view to the cure of this disease, to observe that the several causes of it may be again reduced to two heads. The first is, of those consisting in, or depending upon certain organic affections of the heart itself, or of the great vessels immediately connected with it. The second is, of those consisting in or depending upon certain affections subsisting and acting in other parts of the body, and acting either by the force of the cause, or in consequence of the mobility of the heart.

"Every practitioner knows, that palpitation, syncope, and other irregular motions of the heart, commonly depend upon an organic affection of the heart, or of the great vessels immediately connected with it, as aneurysm, polypus, or ossifications, which are commonly considered as incurable diseases. Dissections have indeed so commonly discovered such causes, that practitioners are very ready to despair of curing such diseases, and desert all attempts towards it; but I think it may be for the instruction of practitioners to give the following case:—

"A gentleman, pretty well advanced in life, was frequently attacked with palpitations of his heart, which by degrees increased, both in frequency and violence; and this continued for two or three years. As the patient was a man of the profession, he was visited by many physicians, who were unanimously of opinion, that the disease depended upon an organic affection of the heart, as we have just now said, and considered it as absolutely incurable. The disease, however, after some years, gradually abated, both in its frequency and violence, and at length ceased altogether; and since that time, for the space of seven or eight years, the gentleman has remained in perfect health without the slightest symptom of his former complaint.

"Besides this, I have had some other instances of palpitations, both violent and lasting, for some length of time; and these especially, with the instance above-mentioned, persuade me, that spasmodic affections, though sometimes both violent and durable, are not always depending upon organic and incurable affections of particular parts, but may very often depend entirely on an affection of the brain alone.—*M.M.*

MCCCLXIII. With respect to the cases depending upon the first set of causes, I must repeat here what I said with respect to the like cases of syncope, that I do not know any means of curing them. They, indeed, admit of some palliation, *first*, by avoiding every circumstance that may hurry the circulation of the blood; and *secondly*, by every means of avoiding a plethoric state of the system, or any occasional turgescence of the blood. In many of these cases, blood-letting may give a temporary relief; but, in so far as debility and mobility are concerned, in such cases this remedy is likely to do harm.

MCCCLXIV. With respect to the cases depending upon the other set of causes, they may be various, and require very different measures. But I can here say in general, that these cases may be considered as of two kinds: one depending upon primary affections in other parts of the body, and acting by the force of the particular causes; and another depending upon a state of mobility in the heart itself. In the first of these, it is obvious that the cure of the palpitation must be obtained by curing the primary affection, which is not to be treated of here. In the second, the cure must be obtained, partly by diligently avoiding the occasional causes, partly and chiefly by correcting the mobility of the system, and of the heart in particular; for doing which, we have treated of the proper means elsewhere.

"Palpitation is generally a symptomatic affection; and so far as it depends upon spasmodic affections, if the primary disease admits of opium, the symptom of palpitation may be cured by it also.—*M. M.*

CHAP. V.—OF DYSPNŒA, OR DIFFICULT BREATHING.

MCCCLXV. The exercise of respiration, and the organs of it, have so constant and considerable a connexion with almost the whole of the other functions and parts of the human body, that upon almost every occasion of disease, respiration must be affected. Accordingly, some difficulty and disorder in this function are in fact symptoms very generally accompanying disease.

MCCCLXVI. Upon this account, the symptom of difficult breathing deserves a chief place, and an ample consideration in the general system of Pathology; but what share of consideration it ought to have in a treatise of Practice, I find it difficult to determine.

MCCCLXVII. On this subject, it is, in the first place, necessary to distinguish between the symptomatic and idiopathic affections; that is, between those difficulties of breathing which are symptoms only of a more general affection, or of a disease subsisting primarily in other parts than the organs of respiration, and that difficulty of breathing which depends upon a primary affection of the lungs themselves. The various cases of symptomatic dyspnœa I have taken pains to enumerate in my Methodical Nosology; and it will be obvious they are such as cannot be taken notice of here.

MCCCLXVIII. In my Nosology I have also taken pains to point out and enumerate the proper, or at least the greater part of the proper idiopathic cases of dyspnœa; but, from that enumeration, it will, I think, readily appear, that few, and indeed hardly any, of these cases, will admit or require much of our notice in this place.

MCCCLXIX. The Dyspnœa *sicca*, *species* 2.; the Dyspnœa *aërea*, *sp.* 3.; the Dyspnœa *terrea*, *sp.* 4.; and Dyspnœa *thoracica*, *sp.* 7., are some of them with difficulty known, and are all of them diseases which, in my opinion, do not admit of cure. All, therefore, that can be said concerning them here is, that they may admit of some palliation; and this, I think, is to be obtained chiefly by avoiding a plethoric state of the lungs, and every circumstance that may hurry respiration.

MCCCLXX. Of the Dyspnœa *extrinseca*, *sp.* 8., I can say no more, but that those external causes marked in the Nosology, and perhaps some others that might have like effects, are to be carefully avoided; or, when they have been applied, and their effects have taken place, the disease is to be palliated by the means mentioned in the last paragraph.

MCCCLXXI. The other species, though enumerated as idiopathic, can hardly be considered as such, or as requiring to be treated of here.

The Dyspnœa *catarrhalis*, *sp.* 1., may be considered as a species of catarrh, and is pretty certainly to be cured by the same remedies as that species of catarrh which depends rather upon the increased afflux of mucus to the bronchiæ, than upon any inflammatory state in them.

The Dyspnœa *aquosa*, *sp.* 5., is certainly to be considered as a species of dropsy, and is to be treated by the same remedies as the other species of that disease.

The Dyspnœa *pinguedinosa*, *sp.* 6., is in like manner to be considered as a symptom or local effect of the Polysarcia, and is only to be cured by correcting the general fault of the system.

MCCCLXXII. From this view of those idiopathic cases of dyspnœa, which are perhaps all I could properly arrange under this title, it will readily appear, that there is little room for treating of them here; but there is still one case of difficult breathing, which has been properly distinguished from every other under the title of *Asthma;* and, as it deserves our particular attention, I shall here separately consider it.

CHAP VI.—OF ASTHMA.

MCCCLXXIII. The term of Asthma has been commonly applied by the vulgar, and even by many writers on the Practice of Physic, to every case of difficult breathing, that is, to every species of Dyspnœa. The Methodical Nosologists, also, have distinguished Asthma from Dispnœa chiefly, and almost solely, by the former being the same affection with the latter, but in a higher degree. Neither of these applications of the term seems to have been correct or proper. I am of opinion, that the term Asthma may be most properly applied, and should be confined, to a case of difficult breathing that has peculiar symptoms, and depends upon a peculiar proximate cause, which I hope to assign with sufficient certainty. It is this disease I am now to treat of, and it is nearly what practical writers have generally distinguished from the other cases of difficult breathing, by the title of Spasmodic Asthma, or of *Asthma convulsivum;* although, by not distinguishing it with sufficient accuracy from the other cases of dyspnœa, they have introduced a great deal of confusion into their treatises on this subject.

MCCCLXXIV. The disease I am to treat of, or the Asthma, to be strictly so called, is often a hereditary disease. It seldom appears very early in life, and hardly till the time of puberty, or after it. It affects both sexes, but most frequently the male. I have not observed it to be more frequent in one kind of temperament than in another; and it does not seem to depend upon any general temperament of the whole body, but upon a particular constitution of the lungs alone. It frequently attacks persons of a full habit; but it hardly ever continues to be repeated for some length of time without occasioning an emaciation of the whole body.

MCCCLXXV. The attacks of this disease are generally in the night time, or towards the approach of night; but there are also some instances of their coming on in the course of the day. At whatever time they come on, it is for the most part suddenly, with a sense of tightness and stricture across the breast, and a sense of straitness in the lungs impeding inspiration. The person thus attacked, if in a horizontal situation, is immediately obliged to get into somewhat of an erect posture, and requires a free and cool air. The difficulty of breathing goes on for some time increasing; and both inspiration and expiration are performed slowly, and with a wheezing noise. In violent fits, speaking is difficult and uneasy. There is often some propensity to coughing, but it can hardly be executed.

MCCCLXXVI. These symptoms often continue for many hours together, and particularly from midnight till the morning is far advanced. Then commonly a remission takes place by degrees; the breathing becomes less laborious and more full, so that the person can speak and cough with more ease; and, if the cough brings up some mucus, the remission becomes immediately more considerable, and the person falls into a much wished-for sleep.

MCCCLXXVII. During these fits the pulse often continues in its natural state; but in some persons the fits are attended with a frequency of pulse, and with some heat and thirst, as marks of some degree of fever. If urine be voided at the beginning of a fit, it is commonly in considerable quantity, and with little colour or odour; but, after the fit is over, the urine voided is in the ordinary quantity, of a high colour, and sometimes deposites a sediment. In some persons, during the fit, the face is a little flushed and turgid; but more commonly it is somewhat pale and shrunk.

MCCCLXXVIII. After some sleep in the morning, the patient, for the rest of the day, continues to have more free and easy breathing, but it is seldom entirely such. He still feels some tightness across his breast, cannot breathe easily in a horizontal posture, and can hardly bear any motion of his body, without having his breathing rendered more difficult and uneasy. In the afternoon, he has an unusual flatulency of his stomach, and an unusual drowsiness, and very frequently these symptoms precede the first attacks of the disease; but, whether these symptoms appear or not, the difficulty of breathing returns towards the evening; and then sometimes gradually increases, till it becomes as violent as in the night before: or if, during the day, the difficulty of breathing has been moderate, and the person gets some sleep in the first part of the night, he is, however, waked about midnight, or at some time between midnight and two o'clock in the morning; and is then suddenly seized with a fit of difficult breathing, which runs the same course as the night before.

MCCCLXXIX. In this manner, fits return for several nights successively; but generally, after some nights passed in this way, the fits suffer more considerable remissions. This especially happens when the remissions are attended with a more copious expectoration in the mornings, and that this continues from time to time throughout the day. In these circumstances, asthmatics, for a long time after, have not only more easy days, but enjoy also nights of entire sleep, without the recurrence of the disease.

MCCCLXXX. When this disease, however, has once taken place in the manner above described, it is ready to return at times for the whole of life after. These returns, however, happen with different circumstances in different persons.

MCCCLXXXI. In some persons the fits are readily excited by external heat, whether of the weather, or of a warm chamber, and particularly by warm bathing. In such persons, fits are more frequent in summer, and particularly during the dog days, than at other colder seasons. The same persons are also readily affected by changes of the weather; especially by sudden changes made from a colder to a warmer, or, what is commonly the same thing, from a heavier to a lighter atmosphere. The same persons are also affected by every circumstance straitening the capacity of the thorax, as by any ligature made, or even by a plaster laid upon it; and a like effect happens from any increased bulk of the stomach, either by a full meal, or by air collected in it. They are likewise much affected by exercise, or whatever else can hurry the circulation of the blood.

MCCCLXXXII. As asthmatic fits seem thus to depend upon some fulness of the vessels of the lungs, it is probable that an obstruction of perspiration, and the blood being less determined to the surface of the body, may favour an accumulation in the lungs, and thereby be a means of exciting asthma. This seems to be the case of those asthmatics who have fits most frequently in the winter season, and who have commonly more of a catarrhal affection accompanying the asthma; which therefore occurs more frequently in winter, and more manifestly from the application of cold.

MCCCLXXXIII. Besides these cases of asthma excited by heat or cold, there are others, in which the fits are especially excited by powers applied to the nervous system; as, by passions of the mind, by particular odours, and by irritations of smoke and dust.

That this disease is an affection of the nervous system, and depending upon a mobility of the moving fibres of the lungs, appears pretty clearly from its being frequently connected with other spasmodic affections depending upon mobility; such as hysteria, hypochondriasis, dyspepsia, and atonic gout.

MCCCLXXXIV. From the whole of the history of asthma now delivered, I think it will readily appear, that the proximate cause of this disease is a preternatural, and in some measure a spasmodic constriction of the muscular fibres of the bronchiæ; which not only prevents the dilatation of the bronchiæ necessary to a free and full inpiration, but gives also a rigidity which prevents a full and free expiration. This preternatural constriction, like many other convulsive and spasmodic affections, is readily excited by a turgescence of the blood, or other cause of any unusual fulness and distention of the vessels of the lungs.

MCCCLXXXV. This disease, as coming by fits, may be generally distinguished from most other species of dyspnœa, whose causes being more constantly applied, produce therefore a more constant difficulty of breathing. There may, however, be some fallacy in this matter, as some of these causes may be liable to have abatements and intensities, whereby the dyspnœa produced by them may seem to come by fits; but I believe it is seldom that such fits put on the appearance of the genuine asthmatic fits described above. Perhaps, however, there is still another case that may give more difficulty: and that is, when several of the causes, which we have assigned as causes of several of the species of difficult breathing referred to the genus of Dyspnœa, may have the effect of exciting a genuine asthmatic fit. Whether this can happen to any but the peculiarly predisposed to asthma, I am uncertain; and therefore, whether, in any such cases, the asthma may be considered as symptomatic; or if, in all such cases, the asthma may not still be considered and treated as an idiopathic disease.

MCCCLXXXVI. The asthma, though often threatening immediate death, seldom occasions it; and many persons have lived long under this disease. In many cases, however, it does prove fatal; sometimes very quickly, and perhaps always at length. In some young persons it has ended soon, by occasioning a phthisis pulmonalis. After a long continuance, it often ends in a hydrothorax; and commonly by occasioning some aneurysm of the heart or great vessels, it thereby proves fatal.

MCCCLXXXVII. As it is seldom that an asthma has been entirely cured, I therefore cannot propose any method of cure which experience has approved as generally successful. But the disease admits of alleviation in several respects from the use of remedies; and my business now shall be chiefly to offer some remarks upon the choice and use of the remedies which have been commonly employed in cases of asthma.

MCCCLXXXVIII. As the danger of an asthmatic fit arises chiefly from the difficult transmission of the blood through the vessels of the lungs, threatening suffocation, so the most probable means of obviating this seems to be blood-letting; and therefore, in all violent fits, practitioners have had recourse to this remedy. In first attacks, and especially in young and plethoric persons, blood-letting may be very necessary, and is commonly allowable. But it is also evident, that, under the frequent recurrence of fits, blood-letting cannot be frequently repeated without exhausting and weakening the patient too much. It is further to be observed, that blood-letting is not so necessary as might be imagined, as the passage of the blood through the lungs is not so much interrupted as has been commonly supposed. This I particularly conclude from hence, that, instead of the suffusion of face, which is the usual effect of such interruption, the face, in asthmatic fits, is often shrunk and pale. I conclude the same also from this, that, in asthmatic fits, blood-letting does not commonly give so much relief as, upon the contrary supposition, might be expected.

MCCCLXXXIX. As I have alleged above, that a turgescence of the blood is frequently the exciting cause of asthmatic fits, so it might be supposed, that a plethoric state of the system might have a great share in producing a turgescence of the blood in the lungs; and especially, therefore, that blood-letting might be a proper remedy in asthma. I allow it to be so in the first attacks of the disease: but as the disease, by continuing, generally takes off the plethoric state of the system; so, after the disease has continued for some time, I allege that blood-letting becomes less and less necessary.

MCCCXC. Upon the supposition of asthmatics being in a plethoric state, purging might be supposed to prove a remedy in this disease: but, both because the supposition is not commonly well founded, and because purging is seldom found to relieve the vessels of the thorax, this remedy has not appeared to be well suited to asthmatics; and large purging has always been found to do much harm. But, as asthmatics are always hurt by the stagnation and accumulation of matters in the alimentary canal, so costiveness must be avoided, and an open belly proves useful. In the time of fits, the employment of emollient and moderately laxative glysters has been found to give considerable relief.

MCCCXCI. As a flatulency of the stomach, and other symptoms of indigestion, are frequent attendants of asthma, and very troublesome to asthmatics; so, both for removing these symptoms, and for taking off all determination to the lungs, the frequent use of gentle vomits is proper in this disease. In certain cases, where a fit was expected to come on in the course of the night, a vomit given in the evening has frequently seemed to prevent it.

"To the power of emetics of determining to the surface of the body, I refer their use in asthma, so much recommended by Dr. Akenside. I cannot indeed say, that I have imitated his practice with much success, for in many cases of spasmodic asthma I have continued the use of emetics for a long time, without finding that I either prevented the recurrence of the fits, or rendered them more moderate when they came; but in some other cases I have found the emetics of benefit in both respects; which, however, happened especially when the asthma was in any degree of the pituitous or catarrhal kind, and therefore the emetics were of more service in the winter than in the summer asthma.—*M. M.*

MCCCXCII. Blistering between the shoulders, or upon the breast, has been frequently employed to relieve asthmatics; but, in the pure spasmodic asthma we treat of here, I have rarely found blisters useful, either in preventing or relieving fits.

MCCCXCIII. Issues are certainly useful in obviating plethora; but, as such indications seldom arise in cases of asthma, so issues have been seldom found useful in this disease.

MCCCXCIV. As asthmatic fits are so frequently excited by a turgescence of the blood, so the obviating and allaying of this by acids and neutral salts, seems to have been at all times the object of practitioners.—See Floyer *on the Asthma.*

MCCCXCV. Although a plethoric state of the system may seem to dispose to asthma, and the occasional turgescence of the blood may seem to be frequently the exciting cause of the fits; yet it is evident, that the disease must have arisen chiefly from a peculiar constitution in the moving fibres of the bronchiæ, disposing them upon various occasions to fall into a spasmodic constriction; and, therefore, that the entire cure of the disease can only be expected from the correcting of that predisposition, or from correcting the preternatural mobility or irritability of the lungs in that respect.

MCCCXCVI. In cases wherein this predisposition depends upon original conformation, the cure must be difficult, and perhaps impossible; but it may perhaps be moderated by the use of antispasmodics. Upon this footing, various remedies of that kind have been commonly employed, and particularly the fetid gums; but we have not found them of any considerable efficacy, and have observed them to be sometimes hurtful by their heating too much. Some other antispasmodics which might be supposed powerful, such as musk, have not been properly tried. The vitriolic ether has been found to give relief, but its effects are not lasting.

MCCCXCVII. As in other spasmodic affections, so in this, the most certain and powerful antispasmodic is opium. I have often found it effectual, and generally safe; and, if there have arisen doubts with respect to its safety, I believe they have arisen from not distinguishing between certain plethoric and inflammatory cases of dyspnœa, improperly named Asthma, and the genuine spasmodic asthma we treat of here.

"Even when the disease is of the catarrhal kind, if it be fit to employ opium to relieve the catarrh, it may likewise be employed to relieve the asthma depending upon it. But I must conclude by remarking, that in both the spasmodic and the catarrhal asthma, I have frequently employed opium in moderating the disease, but have never found it to prove an entire cure of it.—*M.M.*

MCCCXCVIII. As in many cases this disease depends upon a predisposition which cannot be corrected by our art, so in such cases the patient can only escape the disease by avoiding the occasional or exciting causes, which I have endeavoured to point out above. It is, however, difficult to give any general rules here, as different asthmatics have their different idiosyncrasies with respect to externals. Thus, one asthmatic finds himself easiest living in the midst of a great city, while another cannot breathe but in the free air of the country. In the latter case, however, most asthmatics bear the air of a low ground, if tolerably free and dry, better than that of the mountain.

MCCCXCIX. In diet, also, there is some difference to be made with respect to different asthmatics. None of them bear a large or full meal, or any food that is of slow and difficult solution in the stomach; but many of them bear animal food of the lighter kinds, and in moderate quantity. The use of vegetables which readily prove flatulent, is always very hurtful. In recent asthma, and especially in the young and plethoric, a spare, light, and cool diet is proper, and commonly necessary; but, after the disease has continued for years, asthmatics commonly bear, and even require, a tolerably full diet, though in all cases a very full diet is very hurtful.

MCCCC. In drinking, water, or cool watery liquors, is the only safe and fit drink for asthmatics; and all liquors ready to ferment and become flatulent, are hurtful to them. Few asthmatics can bear any kind of strong drink; and any excess in such is always very hurtful to them. As asthmatics are commonly hurt by taking warm or tepid drink; so, both upon that account, and upon account of the liquors weakening the nerves of the stomach, neither tea nor coffee is proper in this disease.

MCCCCI. Asthmatics commonly bear no bodily motion easily but that of the most gentle kind. Riding, however, on horseback, or going in a carriage, and especially sailing, are very often useful to asthmatics.

CHAP. VII.—OF THE CHINCOUGH OR HOOPING-COUGH.

MCCCCII. This disease is commonly epidemic, and manifestly contagious. It seems to proceed from a contagion of a specific nature, and of a singular quality. It does not, like most other contagions, necessarily produce a fever; nor does it, like most others, occasion any eruption, or produce otherwise any evident change in the state of the human fluids. It has, in common with the catarrhal contagion, and with that of the measles, a peculiar determination to the lungs; but with particular effects there, very different from those of the other two; as will appear from the history of this disease now to be delivered.

MCCCCIII. This contagion, like several others, affects persons but once in the course of their lives; and, therefore, necessarily, children are most commonly the subjects of this disease: but there are many instances of it occurring in persons considerably advanced in life; though it is probable, that the farther that persons are advanced in life, they are the less liable to be affected with this contagion.

MCCCCIV. The disease commonly comes on with the ordinary symptoms of a catarrh arising from cold; and often, for many days, keeps entirely to that appearance; and I have had instances of a disease, which, though evidently arising from the chincough contagion, never put on any other form than that of a common catarrh.

This, however, seldom happens; for, generally in the second, and at farthest in the third week after the attack, the disease puts on its peculiar and characteristic symptom, a convulsive cough. This is a cough in which the expiratory motions peculiar to coughing are made with more frequency, rapidity, and violence, than usual. As these circumstances, however, in different instances of coughing, are in very different degrees, so no exact limits can be put to determine when the cough can be strictly said to be convulsive; and it is therefore especially by another circumstance that the chincough is distinguished from every other form of cough. This circumstance is, when many expiratory motions have been convulsively made, and thereby the air is in great quantity thrown out of the lungs, a full inspiration is necessarily and suddenly made, which, by the air rushing in through the glottis with unusual velocity, gives a peculiar sound. This sound is somewhat different in different cases, but is in general called a Hoop, and from it the whole of the disease is called the Hooping-cough. When this sonorous inspiration has happened, the convulsive coughing is again renewed, and continues in the same manner as before, till a quantity of mucus is thrown up from the lungs, or the contents of the stomach are thrown up by vomiting. Either of these evacuations commonly puts an end to the coughing, and the patient remains free from it for some time after. Sometimes it is only after several alternate fits of coughing and hooping that expectoration or vomiting takes place; but it is commonly after the second coughing that these happen, and put an end to the fit.

MCCCCV. When the disease, in this manner, has taken its proper form, it generally continues for a long time after, and generally from one month to three; but sometimes much longer, and that with very various circumstances.

MCCCCVI. The fits of coughing return at various intervals, rarely observing any exact period. They happen frequently in the course of the day, and more frequently still in the course of the night. The patient has commonly some warning of their coming on; and, to avoid that violent and painful concussion which the coughing gives to the whole body, he clings fast to any thing that is near to him, or demands to be held fast by any person that he can come at.

When the fit is over, the patient sometimes breathes fast, and seems fatigued for a little after; but in many this appears very little, and children are commonly so entirely relieved, that they immediately return to their play, or what else they were occupied in before.

MCCCCVII. If it happens that the fit of coughing ends in vomiting up the contents of the stomach, the patient is commonly immediately after seized with a strong craving and demand for food, and takes it in very greedily.

MCCCCVIII. At the first coming on of this disease, the expectoration is sometimes none at all, or of a thin mucus only; and, while this continues to be the case, the fits of coughing are more violent and continue longer: but commonly the expectoration soon becomes considerable, and a very thick mucus, often in great quantity, is thrown up, and as this is more readily brought up, the fits of coughing are of shorter duration.

MCCCCIX. The violent fits of coughing frequently interrupt the free transmission of the blood through the lungs, and thereby the free return of blood from the vessels of the head. This occasions that turgescence and suffusion of face which commonly attends the fits of coughing, and seems to occasion also those eruptions of blood from the nose, and even from the eyes and ears, which sometimes happen in this disease.—“ But these hæmorrhagies are seldom of any mischievous consequence: very often some degree of blooding from the nose promises a very quick relief or remission of the disease.”

MCCCCX. This disease often takes place in the manner we have now described, without any pyrexia attending it; but, though Sydenham had seldom observed it, we have found the disease very frequently accompanied with pyrexia, sometimes from the very beginning, but more frequently only after the disease had continued for some time. When it does accompany the disease, we have not found it appearing under any regular intermittent form. It is constantly in some degree present; but with evident exacerbations towards evening, continuing till next morning.

DCCCCXI. Another symptom very frequently attending the chincough, is a difficulty of breathing; and that not only immediately before and after fits of coughing, but as constantly present, though in different degrees in different persons. I have hardly ever seen an instance of a fatal chincough, in which a considerable degree of pyrexia and dyspnœa had not been for some time constantly present.

MCCCCXII. When, by the power of the contagion, this disease has once taken place, the fits of coughing are often repeated, without any evident exciting cause: but, in many cases, the contagion may be considered as giving a predisposition only, and the frequency of fits depends in some measure upon various exciting causes; such as violent exercise, a full meal, the having taken in food of difficult solution, irritations of the lungs by dust, smoke, or disagreeable odours of a strong kind; and, especially, any considerable emotion of the mind.

MCCCCXIII. Such are the chief circumstances of this disease, and it is of various event; which, however, may be commonly foreseen by attending to the following considerations.

The younger that children are, they are in the greater danger from this disease; and of those to whom it proves fatal, there are many more under two years old than above it.

The older that children are, they are the more secure against an unhappy event; and this I hold to be a very general rule, though I own there are many exceptions to it.

Children born of phthisical and asthmatic parents are in the greatest danger from this disease.

When the disease, beginning in the form of a catarrh, is attended with fever and difficult breathing, and with little expectoration, it often proves fatal, without taking on the form of the hooping-cough; but, in most of such cases, the coming on of the convulsive cough and hooping, bringing on at the same time a more free expectoration, generally removes the danger.

When the disease is fully formed, if the fits are neither frequent nor violent, with moderate expectoration, and the patient, during the intervals of the fits, is easy, keeps his appetite, gets sleep, and is without fever or difficult breathing, the disease is attended with no danger; and these circumstances becoming daily more favourable, the disease very soon spontaneously terminates.

An expectoration, either very scanty or very copious, is attended with danger, especially if the latter circumstance is attended with great difficulty of breathing.

Those cases in which the fits terminate by a vomiting, and are immediately followed by a craving of food, are generally without danger.

A moderate hæmorrhagy from the nose often proves salutary; but very large hæmorrhagies are generally very hurful.

This disease coming upon persons under a state of much debility, has very generally an unhappy event.

The danger of this disease sometimes arises from the violence of the fits of coughing, occasioning apoplexy, epilepsy, or immediate suffocation. But these accidents are very rare; and the danger of the disease seems generally to be in proportion to the fever and dyspnœa attending it.

"These are the remarks which I have to make on the pathology of the disease; for I dare not venture to say any thing towards a theory. I have no conception of what is the circumstance of the peculiar contagion which determines it to the lungs; and I know nothing of this contagion being analogous to the contagious catarrh, or concerned with the matter of perspiration. If the disease consisted entirely of catarrhal symptoms, we might say so, but we have no view of explaining the convulsive motion, its particular circumstances, or the singularity of its duration. Even its contagious nature gives difficulty, as we have nothing analogous in other cases."

MCCCCXIV. The cure of this disease has been always considered as difficult, whether the purpose be to obviate its fatal tendency when it is violent, or merely to shorten the course of it when it is mild. When the contagion is recent, and continues to act, we neither know how to correct, nor how to expel it; and therefore the disease necessarily continues for some time but it is probable that the contagion in this as in other instances ceases at length to act; and that then the disease continues, as in other convulsive affections, by the power of habit alone.

MCCCCXV. From this view of the matter, I maintain, that the practice must be different, and adapted to two different indications, according to the period of the disease. At the beginning of the disease, and for some time after, the remedies to be employed must be such as may obviate the violent effects of the disease, and the fatal tendency of it; but, after the disease has continued for some time, and is without any violent symptoms, the only remedies which can be required, are those which may interrupt its course, and put an entire stop to it sooner than it would have spontaneously ceased.

MCCCCXVI. For answering the first indication. In plethoric subjects, or in others, when, from the circumstances of the cough and fits, it appears that the blood is difficultly transmitted through the lungs, blood-letting is a necessary remedy: and it may be even necessary to repeat it, especially in the beginning of the disease. But, as spasmodic affections do not commonly admit of much bleeding, so it is seldom proper in the chincough to repeat this remedy often.—" We must take care not to bleed in every case where fever exists. I have seen the disease go on for a month or six weeks, seemingly with violent symptoms and very little fever: afterwards the fever came on in an advanced stage of the disease; and I have generally found that such cases do not admit of bleeding, if the symptoms do not render it absolutely necessary."

MCCCCXVII. As costiveness frequently attends this disease, so it is necessary to obviate or remove it by laxatives employed; and keeping an open belly is generally useful: but large evacuations in this way are commonly hurtful.

" There is a particular circumstance which has been thought to render purging necessary. In younger children the mucus brought up from the lungs is seldom spit out, but is swallowed down into the stomach, and may give disturbance; so that purging is necessary to evacuate this quantity of mucus.

" I have seen in several instances a spontaneous purging coming on, but without either relieving or shortening the disease;

so that I am doubtful with regard to the use of frequent purging; and I suspect that, as it is a nervous disease, all strong evacuations may do some harm."

MCCCCXVIII. To obviate or remove the inflammatory determination to the lungs that sometimes occurs in this disease, blistering is often useful, and even repeated blistering has been of service; but issues have not so much effect, and should by no means supersede the repeated blistering that may be indicated. When blisters are proper, they are more effectual when applied to the thorax than when applied to any distant parts.

MCCCCXIX. Of all other remedies, emetics are the most useful in this disease; both in general by interrupting the return of spasmodic affections, and in particular by determining very powerfully to the surface of the body, and thereby taking off determinations to the lungs. For these purposes, I think, full vomiting is frequently to be employed; and, in the intervals necessary to be left between the times of full vomiting, nauseating doses of the antimonial emetics may be useful. I have never found the *sulphur auratum*, so much praised by Clossius, to be a convenient medicine, on account of the uncertainty of its dose; and the tartar emetic employed in the manner directed by the late Dr. Fothergill, has appeared to be more useful.

MCCCCXX. These are the remedies to be employed in the first stage of the disease for obviating its fatal tendency, and putting it into a safe train. But, in the second stage, when I suppose the contagion has ceased to act, and that the disease continues merely by the power of habit, a different indication arises, and different remedies are to be employed.

MCCCCXXI. This disease, which often continues for a long time, does not, in my opinion, continue during the whole of that time in consequence of the contagion's remaining in the body, and continuing to act in it. That the disease does often continue long after the contagion has ceased to act, and that too by the power of habit alone, appears to me probable from hence, that terror has frequently cured the disease; that any considerable change in the state of the system, such as the coming on of the smallpox, has also cured it; and, lastly, that it has been cured by antispasmodic and tonic medicines; whilst none of all these means of cure can be supposed either to correct or to expel a morbific matter, though they are evidently suited to change the state and habits of the nervous system.

MCCCCXXII. From this view we are directed to the indication that may be formed, and in a great measure to the remedies which may be employed in what we suppose to be the second stage of the disease. It may perhaps be alleged, that this indication of shortening the course of the disease is not very important or necessary, as it supposes that the violence or danger is over, and, in consequence, that the disease will soon spontaneously cease. The last supposition, however, is not well founded; as the disease, like many other convulsive and spasmodic affections, may continue for a long time by the power of habit alone, and by the repetition of paroxysms may have hurtful effects; more especially as the violence of paroxysms, and therefore their hurtful effects, may be much aggravated by various external causes that may be accidentally applied. Our indication, therefore, is proper; and we proceed to consider the several remedies which may be employed to answer it.

MCCCCXXIII. Terror may possibly be a powerful remedy, but it is difficult to measure the degree of it that shall be produced; and, as a slight degree of it may be ineffectual, and a high degree of it dangerous, I cannot propose to employ it.

MCCCCXXIV. The other remedies which we suppose suited to our second indication, and which indeed have been frequently employed in this disease, are antispasmodics or tonics.

Of the antispasmodics, castor has been particularly recommended by Dr. Morris; but, in many trials, we have not found it effectual.

With more probability musk has been employed. But, whether it be from our not having it of a genuine kind, or not employing it in sufficiently large doses, I cannot determine; but we have not found it commonly successful. Of antispasmodics, the most certainly powerful is opium. And, when there is no considerable fever or difficulty of breathing present, opium has often proved useful in moderating the violence of the chincough; but I have not known it employed so as entirely to cure the disease.

" With respect to the chincough, we have to observe, that in the first stage of it, and especially when that is attended with fever and difficulty of breathing, opium has always appeared to me very hurtful; but when the disease has subsisted for some time, and is in what I call its second stage, and when the fits come most frequently in the night time, I have found opium of great use; and, as I judge, it has often contributed to put an end to the disease.—*M.M.*

If hemlock has proved a remedy in this disease, as we must believe from Dr. Butter's accounts, I agree with that author, that it is to be considered as an antispasmodic. Upon this supposition, it is a probable remedy; and from the accounts of Dr. Butter, and some others, it seems to have been often useful: but in our trials it has often disappointed us, perhaps from the preparation of it not having been always proper.

"The pulegium (pennyworth) has been considered as an antispasmodic, and of particular use in the chincough; but in many trials of it, I have not found it of any service; and, on the contrary, like every other heating medicine, have found it hurtful.—*M.M.*

MCCCCXXV. Of the tonics, I consider the cup moss, formerly celebrated, as of this kind; as also the bark of the mistletoe; but I have had no experience of either, as I have always trusted to the Peruvian bark. I consider the use of this medicine as the most certain means of curing the disease in its second stage; and when there has been little fever present, and a sufficient quantity of the bark has been given, it has seldom failed of soon putting an end to the disease.

"When the disease is yet recent, and the contagion perhaps still acting, it is often hurtful; but when the disease is more advanced, and the force of the contagion is probably gone, and the disease continues by the force of habit only, I am pretty certain that the bark will then soon put an end to it, providing only that no congestion has been formed or continues in the lungs.—*M.M.*

"It is common to employ in this disease, a variety of pectorals; squills and ammoniac therefore have been frequently used; but as far as I can observe, both are rather hurtful than healthful. Squills are emetics, and it is probable that like the sulphur auratum antimonii and the tartar emetic, they may be useful as such; but it is difficult to exhibit them to children in that quantity which is necessary without putting them from their food; and from their heating and irritating nature, they rather aggravate the disease.

"The other pectorals, sweets and mucilages, are frequently injurious, by loading the stomach, which is liable to be clogged by the mucus so readily swallowed by children."

MCCCCXXVI. When convulsive disorders may be supposed to continue by the force of habit alone, it has been found that a considerable change in the whole of the circumstances and manner of life has proved a cure of such diseases; and analogy has applied this in the case of the chincough so far, that a change of air has been employed, and supposed to be useful. In several instances I have observed it to be so; but I have never found the effects of it durable, or sufficient to put an entire stop to the disease.

SECT. III.—OF THE SPASMODIC AFFECTIONS IN THE NATURAL FUNCTIONS.

"Here we comprehend a number of diseases, which hardly any system has thought of bringing under the head of *Spasmi;* but you will recollect the sense in which I take this term, as comprehending every mode of convulsion; so with what propriety they are brought under this head, you must judge from the particular account of each. They are chiefly diseases occurring in the alimentary canal."

CHAP. VIII.—OF THE PYROSIS, OR WHAT IS NAMED IN SCOTLAND, THE WATER-BRASH.

MCCCCXXVII. The painful sensations referred to the stomach, and which are probably occasioned by real affections of this organ, are of different kinds. Probably they proceed from affections of different natures, and should therefore be distinguished by different appellations; but I must own that the utmost precision in this matter will be difficult. In my essay towards a methodical Nosology, I have, however, attempted it. For those pains that are either acute or pungent, or accompanied with a sense of distention, or with a sense of constriction, if they are at the same time not attended with any sense of acrimony or heat, I employ the appellation of Gastrodynia. To express those painful or uneasy sensations which seem to arise from a sense of acrimony irritating the part, or from such a sense of heat as the application of acrids, whether externally or internally applied, often gives, I employ the term of Cardialgia; and by this I particularly mean to denote those feelings which are expressed by the term Heartburn in the English language. I think the term Soda has been commonly employed by practical writers, to express an affection attended with feelings of the latter kind.

MCCCCXXVIII. Beside the pains denoted by the terms Gastrodynia, Periadynia, Cardialgia, and Soda, there is, I think, another painful sensation different from all of these, which is named by Mr. Sauvages Pyrosis Suecica; and his account of it is taken from Linnæus, who names it Cardialgia sputatoria. Under the title of Pyrosis, Mr. Sauvages has formed a genus, of which the whole of the species, except the eighth, which he gives under the title of Pyrosis Suecica, are all of them species of the Gastrodynia, or of the Cardialgia; and if there is a genus to be formed under the title of Pyrosis, it can, in my opinion, comprehend only the species I have mentioned. In this case, indeed, I own that the term is not very proper; but my aversion to introduce new names has made me continue to employ the term of Mr. Sauvages.

MCCCCXXIX. The Gastrodynia and Cardialgia I judge to be for the most part symptomatic affections, and therefore have given them no place in this work; but the Pyrosis, as an idiopathic disease, and never before treated of in any system, I propose to treat of here.

MCCCCXXX. It is a disease frequent among people in lower life; but occurs also, though more rarely, in people of better condition. Though frequent in Scotland, it is by no means so frequent as Linnæus reports it to be in Lapland. It appears most commonly in persons under middle age, but seldom in any persons before the age of puberty. When it has once taken place, it is ready to recur occasionally for a long time after; but it seldom appears in persons considerably advanced in life. It affects both sexes, but more frequently the female. It sometimes attacks pregnant women, and some women only when they are in that condition. Of other women, it more frequently affects the unmarried; and of the married, most frequently the barren. I have had many instances of its occurring in women labouring under a fluor albus.

MCCCCXXXI. The fits of this disease usually come on in the morning and forenoon, when the stomach is empty. The first symptom of it is a pain at the pit of the stomach, with a sense of constriction, as if the stomach was drawn towards the back; the pain is increased by raising the body into an erect posture, and therefore the body is bended forward. This pain is often very severe; and, after continuing for some time, it brings on an eructation of a thin watery fluid in considerable quantity. This fluid has sometimes an acid taste, but is very often absolutely insipid. The eructation is for some time frequently repeated; and does not immediately give relief to the pain which preceded it, but does so at length, and puts an end to the fit.

MCCCCXXXII. The fits of this disease commonly come on without any evident exciting cause; and I have not found it steadily connected with any particular diet. It attacks persons using animal food, but I think more frequently those living on milk and farinacea. It seems often to be excited by cold applied to the lower extremities, and is readily excited by any considerable emotion of mind. It is often without any symptoms of dyspepsia.

MCCCCXXXIII. The nature of this affection is not very obvious; but I think it may be explained in this manner: It seems to begin by a spasm of the muscular fibres of the stomach; which is afterwards, in a certain manner, communicated to the blood-vessels and exhalents, so as to increase the impetus of the fluids in these vessels, while a constriction takes place on their extremities. While, therefore, the increased impetus determines a greater quantity than usual of fluids into these vessels, the constriction upon their extremities allows only the pure watery parts to be poured out, analogous, as I judge, in every respect, to what happens in the Diabetes hystericus.

MCCCCXXXIV. The practice in this disease is as difficult as the theory. The paroxysm is only to be certainly relieved by opium. Other antispasmodics, as vitriolic ether and volatile alkali, are sometimes of service, but not constantly so. Although opium and other antispasmodics relieve the fits, they have no effect in preventing their recurrence. For this purpose, the whole of the remedies of dyspepsia have been employed without success. Of the use of the nux vomica, mentioned as a remedy by Linnæus, I have had no experience.

CHAP. IX.—OF THE COLIC.

MCCCCXXXV. The principal symptom of this disease is a pain felt in the lower belly. It is seldom fixed and pungent in one part, but is a painful distention in some measure spreading over the whole of the belly; and particularly with a sense of twisting or wringing round the navel. At the same time, with this pain, the navel and teguments of the belly are frequently drawn inwards, and often the muscles of the belly are spasmodically contracted, and this in separate portions, giving the appearance of a bag full of round balls.

MCCCCXXXVI. Such pains, in a certain degree, sometimes occur in cases of diarrhœa and cholera; but these are less violent and more transitory, and are named Gripings. It is only when more violent and permanent, and attended with costiveness, that they constitute colic. This is also commonly attended with vomiting, which in many cases is frequently repeated, especially when any thing is taken down into the stomach; and in such vomitings, not only the contents of the stomach are thrown up, but also the contents of the duodenum, and therefore frequently a quantity of bile.

MCCCCXXXVII. In some cases of colic, the peristaltic motion is inverted through the whole length of the alimentary canal, in such a manner that the contents of the great guts, and therefore stercoraceous matter, is thrown up by vomiting; and the same inversion appears still more clearly from this, that what is thrown into the rectum by glyster is again thrown out by the mouth. In these circumstances of inversion the disease has been named Ileus, or the Iliac Passion; and this has been supposed to be a peculiar disease distinct from colic; but to me it appears, that the two diseases are owing to the same proximate cause, and have the same symptoms, only in a different degree.

"Among the synonyms of colic I have set down Ileus. This implies that I consider colic and ileus as one and the same disease, differing merely in degree. The common opinion is, that ileus depends on inflammation; and there may be reason for thinking so, because dissections have shewn an inflamed state; but, I maintain that when inflammation occurs, it merely supervenes upon the original disease; and I have in more than one instance seen all the symptoms of ileus without inflammation, and the disease readily admitting of a cure without the remedies against inflammation. We had a patient in the Infirmary, who for weeks threw up stercoraceous substances, and the matters injected by glysters; but there was an entire absence of fever, and the disease by its circumstances and cure shewed that no inflammation was present. When I thus therefore separate ileus from enteritis, I refer it to the colic."

MCCCCXXXVIII. The colic is often without any pyrexia attending it. Sometimes, however, an inflammation comes upon the part of the intestine especially affected; and this inflammation aggravates all the symptoms of the disease, being probably what brings on the most considerable inversion of the peristaltic motion; and, as the stercoraceous vomiting is what especially distinguishes the ileus, this has been considered as always depending on an inflammation of the intestines. However, I can affirm, that as there are inflammations of the intestines without stercoraceous vomiting, so I have seen instances of stercoraceous vomiting without inflammation; and there is therefore no ground for distinguishing ileus from colic, but as a higher degree of the same affection.

MCCCCXXXIX. The symptoms of the colic, and the dissections of bodies dead of this disease, show very clearly that it depends upon a spasmodic constriction of a part of the intestines; and that this therefore is to be considered as the proximate cause of the disease. In some of the dissections of persons dead of this disease, an intus-susception has been remarked to have happened; but whether this be constantly the case in all the appearances of ileus, is not certainly determined.

MCCCCXL. The colic has commonly been considered as being of different species, but I cannot follow the writers on this subject in the distinctions they have established. So far, however, as a difference of the remote cause constitutes a difference of species, a distinction may perhaps be admitted; and accordingly, in my Nosology, I have marked seven different species; but I am well persuaded, that in all these different species the proximate cause is the same, that is, a spasmodic constriction of a part of the intestines; and, consequently, that in all these cases the indication of cure is the same, that is, to remove the constriction mentioned. Even in the several species named *Stercorea*, *Callosa*, and *Calculosa*, in which the disease depends upon an obstruction of the intestine, I am persuaded, that these obstructions do not produce the symptoms of colic, excepting in so far as they produce spasmodic constrictions of the intestines; and therefore that the means of cure in these cases, so far as they admit of cure, must be obtained by the same means which the general indication above-mentioned suggests.

MCCCCXLI. The cure, then, of the colic universally, is to be obtained by removing the spasmodic constrictions of the intestines; and the remedies suited to this purpose may be referred to three general heads:

1. The taking off the spasm by various antispasmodic powers.
2. The exciting the action of the intestines by purgatives.
3. The employing mechanical dilatation.

MCCCCXLII. Before entering upon a more particular account of these remedies, it will be proper to observe, that in all cases of violent colic, it is advisable to practise blood-letting; both as it may be useful in obviating the inflammation which is commonly to be apprehended, and even as it may be a means of relaxing the spasm of the intestine. This remedy may perhaps be improper in persons of a weak and lax habit, but in all persons of tolerable vigour it will be a safe remedy; and in all cases where there is the least suspicion of an inflammation actually coming on, it will be absolutely necessary; nay, it will be even proper to repeat it perhaps several times, if, with a full and hard pulse, the appearance of the blood drawn, and the relief obtained by the first bleeding, shall authorize such repetition.

MCCCCXLIII. The antispasmodic powers that may be employed, are, the application of heat in a dry or humid form, the application of blisters, the use of opium, and the use of mild oils.

The application of heat, in a dry form, has been employed by applying to the belly of the patient a living animal, or bladders filled with warm water, or bags of substances which long retain their heat; and all these have sometimes been applied with success; but none of them seem to me so powerful as the application of heat in a humid form.

This may be employed either by the immersion of a great part of the body in warm water, or by fomenting the belly with cloths wrung out of hot water. The immersion has advantages from the application of it to a greater part of the body, and particularly to the lower extremities: but immersion cannot always be conveniently practised, and fomentation may have the advantage of being longer continued; and it may have nearly all the benefit of immersion, if it be at the same time applied both to the belly and to the lower extremities.

MCCCCXLIV. From considering that the teguments of the lower belly have such a connexion with the intestines, as at the same time to be affected with spasmodic contraction, we perceive that blisters applied to the belly may have the effect of taking off the spasms both from the muscles of the belly and from the intestines; and accordingly blistering has often been employed in the colic with advantage. Analogous to this, rubefacients applied to the belly have been frequently found useful.

MCCCCXLV. The use of opium in colic may seem to be an ambiguous remedy. Very certainly it may for some time relieve the pain, which is often so violent and urgent that it is difficult to abstain from the use of such a remedy. At the same time, the use of opium retards or suspends the peristaltic motion so much, as to allow the intestines to fall into constrictions; and may therefore, while it relieves the pain, render the cause of the disease more obstinate. On this account, and further as opium prevents the operation of purgatives so often necessary in this disease, many practitioners are averse to the use of it, and some entirely reject the use of it as hurtful. There are, however, others who think they can employ opium in this disease with much advantage.

In all cases where the colic comes on without any previous costiveness, and arises from cold, from passions of the mind, or other causes which operate especially on the nervous system, opium proves a safe and certain remedy; but in cases which have been preceded by long costiveness, or where the colic, though not preceded by costiveness, has however continued for some days without a stool, so that a stagnation of fæces in the colon is to be suspected, the use of opium is of doubtful effect. In such cases, unless a stool has been first procured by medicine, opium cannot be employed but with some hazard of aggravating the disease. However, even in those circumstances of costiveness, when, without inflammation, the violence of the spasm is to be suspected, when vomiting prevents the exhibition of purgatives, and when with all this the pain is extremely urgent, opium is to be employed, not only as an anodyne, but also as an antispasmodic, necessary to favour the operation of purgatives; and may be so employed, when, either at the same time with the opiate, or not long after it, a purgative can be exhibited.— "If opium can be employed so as not to interfere with the operation of purgatives, it may as an antispasmodic even favour the operation of these, and contribute to the cure of certain cases of colic. For this purpose some practitioners have exhibited the opium and the purgatives at the same time; but this has been seldom found to answer; and it has always appeared better in the urgency of pain, to exhibit the opiate by itself; and in four, five, or six hours after, when the power of it was somewhat diminished, to exhibit the purgative. In this manner of managing, it is commonly necessary to employ a purgative of the powerful kind, and one that commonly operates soon after its exhibition: and these considerations will, on the one hand, exclude the employment of aloetics; and on the other recommend the use of the oleum ricini.—*M.M.*

Is the hyoscyamus, as often showing, along with its narcotic, a purgative quality, better suited to this disease than opium?—"We have frequently found the hyoscyamus an agreeable anodyne and soporiferous medicine in persons who, from particular circumstances, did not agree with opium, and particularly because it was less binding to the belly than opium. We judge, however, that it is more ready in full doses to give delirium than opium is: and therefore we have found it in many cases to give turbulent and unrefreshing sleep; and notwithstanding its laxative qualities, for which we had employed it, we have been obliged to lay it aside.—*M.M.*

MCCCCXLVI. It is seemingly on good grounds that several practitioners have recommended the large use of mild oils in this disease, both as antispasmodics and as laxatives; and where the palate and stomach could admit them, I have found them very useful. But as there are few Scottish stomachs that can admit a large use of oils, I have had few opportunities of employing them.

MCCCCXLVII. The second set of remedies adapted to the cure of colic, are purgatives; which, by exciting the action of the intestines, either above or below the obstructed place, may remove the constriction; and therefore these purgatives may be given either by the mouth, or thrown by glysters into the anus. As the disease is often seated in the great guts; as glysters, by having a more sudden operation, may give more immediate relief; and as purgatives given by the mouth are ready to be rejected by vomiting; so it is common, and indeed proper, to attempt curing the colic in the first place by glysters. These may at first be of the mildest kind, consisting of a large bulk of water, with some quantity of mild oil; and such are sometime sufficiently efficacious: however, they are not always so; and it is commonly necessary to render them more powerfully stimulant by the addition of neutral salts, of which the most powerful is the common or marine salt. If these saline glysters, as sometimes happens, are rendered again too quickly, and on this account or otherwise are found ineffectual, it may be proper, instead of these salts, to add to the glysters an infusion of senna or of some other purgative that can be extracted by water. The antimonial wine may be sometimes employed in glysters with advantage. Hardly any glysters are more effectual than those made of turpentine properly prepared.—" The power of turpentine of stimulating the intestines appears especially when it is employed in glysters, when to the quantity of half an ounce or an ounce it is very diligently triturated with yolk of egg, so as to be perfectly diffused and suspended in watery liquor, and in this state injected into the rectum. We have found it to be one of the most certain laxatives that could be employed in colics and other cases of obstinate costiveness.—*M.M.*

When all other injections are found ineffectual, recourse is to be had to the injection of tobacco-smoke; and, when even this fails, recourse is to be had to the mechanical dilatation to be mentioned hereafter.—" Tobacco is generally very effectually employed in glysters in cases of more obstinate costiveness. It is indeed a very effectual medicine, but attended with this inconvenience, that when the dose happens to be in any excess, it occasions severe sickness at stomach, and I have known it frequently occasion vomiting. In cases of obstinate costiveness, the smoke of burning tobacco has been thrown into the anus with great advantage. It reaches much further into the intestines than injections can commonly do, and is thereby applied to a larger surface, and may therefore be a more powerful medicine than the infusions. In several instances, however, I have been disappointed of its effects, and have been obliged to have recourse to other means.—*M.M.*

MCCCCXLVIII. As glysters often fail altogether in relieving this disease, and as even when they give some relief they are often imperfect in producing a complete cure; so it is generally proper, and often necessary, to attempt a more entire and certain cure by purgatives given by the mouth. The more powerful of these, or, as they are called, the Drastic Purgatives, may be sometimes necessary; but their use is to be avoided, both because they are apt to be rejected by vomiting, and because when they do not succeed in removing the obstruction they are ready to induce an inflammation.—" A third reason for avoiding them is, that they do not operate without exciting very considerable spasmodic constrictions; hence the violent gripings which they occasion."—Upon this account it is usual, and indeed proper, at least in the first place, to employ the milder and less inflammatory purgatives. None have succeeded with me better than the crystals of tartar, because this medicine may be conveniently given in small but repeated doses to a considerable quantity; and under this management it is the purgative least ready to be rejected by vomiting, and much less so than the other neutral salts. If a stronger purgative be required, jalap, properly prepared, is less offensive to the palate, and sits better upon the stomach than most other powerful purgatives. On many occasions of colic, nothing is more effectually purgative than a large dose of calomel. Some practitioners have attempted to remove the obstruction of the intestines by antimonial emetics exhibited in small doses, repeated at proper intervals; and when these doses are not entirely rejected by vomiting, they often prove effectual purgatives.

When every purgative has failed, the action of the intestines has been effectually excited by throwing cold water on the lower extremities.

"Cold water applied to the lower extremities, is a purgative: we have seen innumerable instances of colics, and of more or less of diarrhœa, induced by cold water applied to the lower extremities. I cannot say by what accident it was thought of as a remedy: but it was not a far-fetched analogy. A physician of this place tried it in a very obstinate colic, which had resisted a variety of purgatives for a great length of time: of which case you have an account in the Edinburgh Medical Essays. The patient was set with his naked feet on the floor, and water was thrown upon his feet and legs, and even on the lower belly itself. This was found effectual in the above case, and in two or three others; and it is very likely to prove useful in the case which I have considered of spasmodic constriction of the intestines; but there are certain cases when the obstructions of the intestinal canal are owing to an *Angustatio*, and there I have seen the cold water of no effect: but it is remarkable, that even in the case where the resistance, as we learned afterwards by dissection, was insuperable, a scirrhous constriction having reduced the intestine to a very small size, even there the water did no harm; which encourages the trial of it in other cases."

MCCCCXLIX. The third means of overcoming the spasm of the intestines in this disease, is by employing a mechanical dilatation; and it has been frequently supposed that quicksilver given in large quantity might operate in this manner. I have not, however, found it successful; and the theory of it is with me very doubtful. Some authors have mentioned the use of gold and silver pills, or balls, swallowed down; but I have no experience of such practices, and I cannot suppose them a probable means of relief.

MCCCCL. Another means of mechanical dilatation, and a more probable measure, is by injecting a large quantity of warm water by a proper syringe, which may throw it with some force, and in a continued stream, into the rectum. Both from the experiments reported by the late Mr. De Haen, and from those I myself have had occasion to make, I judge this remedy to be one of the most powerful and effectual.

MCCCCLI. I have now mentioned all the several means that may be employed for the cure of the colic, considered as a genus; but before I quit this subject, it may be expected that I should take notice of some of the species which may seem to require a particular consideration. In this view it may be expected that I should especially take notice of that species named the Colic of Poitou, and particularly known in England by the name of the Devonshire Colic.

MCCCCLII. This species of the disease is certainly a peculiar one, both in respect of its cause and its effects; but, as to the first, it has been lately so much the subject of investigation, and is so well ascertained by the learned physicians, Sir George Baker and Dr. Hardy, that it is unnecessary for me to say any thing of it here.

With respect to the cure of it, so far as it appears in the form of a colic, my want of experience concerning it does not allow me to speak with any confidence on the subject; but, so far as I can learn from others, it appears to me, that it is to be treated by all the several means that I have proposed above for the cure of colic in general.

How far the peculiar effects of this disease are to be certainly foreseen and obviated, I have not properly learned; and I must leave the matter to be determined by those who have had sufficient experience in it.

CHAP. X.—OF THE CHOLERA.

MCCCCLIII. In this disease, a vomiting and purging, concurring together, or frequently alternating with one another, are the chief symptoms. The matter rejected both upwards and downwards appears manifestly to consist chiefly of bile.

MCCCCLIV. From the last circumstance I conclude, that the disease depends upon an increased secretion of bile, and its copious effusion into the alimentary canal; and, as in this it irritates and excites the motions above mentioned, I infer that the bile thus effused in larger quantity is, at the same time, also of a more acrid quality. This appears likewise from the violent and very painful gripings that attend the disease, and which we can impute only to the violent spasmodic contractions of the intestines that take place here. These spasms are commonly communicated to the abdominal muscles, and very frequently to those of the extremities.

MCCCCLV. In the manner now described, the disease frequently proceeds with great violence till the strength of the patient is greatly, and often suddenly, weakened; while a coldness of the extremities, cold sweats, and faintings coming on, an end is put to the patient's life, sometimes in the course of one day. In other cases the disease is less violent, continues for a day or two, and then ceases by degrees; though such recoveries seldom happen without the assistance of remedies.

MCCCCLVI. The attacks of this disease are seldom accompanied with any symptoms of pyrexia; and though, during the course of it, both the pulse and respiration are hurried and irregular, yet these symptoms are generally so entirely removed by the remedies that quiet the spasmodic affections peculiar to the disease, as to leave no ground for supposing that it had been accompanied by any proper pyrexia.

MCCCCLVII. This is a disease attending a very warm state of the air; and in very warm climates it may perhaps appear at any time of the year; but even in such climates it is most frequent during their warmest seasons; and in temperate climates, it appears only in the warm seasons. Dr. Sydenham considered the appearances of this disease in England to be confined to the month of August; but he himself observed it to appear sometimes towards the end of summer, when the season was unusually warm; and that, in proportion to the heat, the violence of the disease was greater. Others have observed, that it appeared more early in summer, and always sooner or later, according as the great heats sooner or later set in.

MCCCCLVIII. From all these circumstances, it is, I think, very evident that this disease is the effect of a warm atmosphere, producing some change in the state of the bile in the human body; and the change may consist, either in the matter of the bile being rendered more acrid, and thereby fitted to excite a more copious secretion; or, in the same matter its being prepared to pass off in larger quantity than usual.

MCCCCLIX. It has been remarked, that in warm climates and seasons, after extremely hot and dry weather, a fall of rain cooling the atmosphere seems especially to bring on this disease; and it is very probable that an obstructed perspiration may have also a share in this, though it is also certain that the disease does appear when no change in the temperature of the air, nor any application of cold, have been observed.

MCCCCLX. It is possible, that, in some cases, the heat of the season may give only a predisposition, and that the disease may be excited by certain ingesta or other causes; but it is equally certain, that the disease has occurred without any previous change or error, either in diet, or in the manner of life, that could be observed.

"I give you these hints for your further inquiry: I do not mean to discuss them. I touched them before in treating of bilious fevers (LI.—LXXI.), when I said indeed, that there was a suspicion of a particular state of the bile prevailing at that season, which allows us to suppose, that it may modify the fever, operate in producing this cholera, and somewhat modify dysentery."

MCCCCLXI. The Nosologists have constituted a Genus under the title of Cholera, and under this have arranged as species every affection in which a vomiting and purging of any kind happened to concur. In many of these species, however, the matter evacuated is not bilious, nor does the evacuation proceed from any cause in the state of the atmosphere. Further, in many of these species also, the vomiting which occurs is not an essential, but merely an accidental symptom from the particular violence of the disease. The appellation of Cholera, therefore, should, in my opinion, be confined to the disease I have described above, which, by its peculiar cause, and perhaps also by its symptoms, is very different from all the other species that have been associated with it. I believe that all the other species arranged under the title of Cholera, by Sauvages or Sagar, may be properly enough referred to the genus of Diarrhœa, which we are to treat of in the next chapter.

The distinction I have endeavoured to establish between the proper Cholera, and the other diseases that have sometimes got the same appellation, will, as I judge, supersede the question, Whether the Cholera, in temperate climates, happens at any other season than that above assigned?

MCCCCLXII. In the case of a genuine cholera, the cure of it has been long established by experience.

In the beginning of the disease, the evacuation of the redundant bile is to be favoured by the plentiful exhibition of mild diluents, both given by the mouth, and injected by the anus; and all evacuant medicines, employed in either way, are not only superfluous, but commonly hurtful.

MCCCCLXIII. When the redundant bile appears to be sufficiently washed out, and even before that, if the spasmodic affections of the alimentary canal become very violent, and are communicated in a considerable degree to other parts of the body, or when a dangerous debility seems to be induced, the irritation is to be immediately obviated by opiates in sufficiently large doses, but in small bulk, and given either by the mouth or by glyster.

MCCCCLXIV. Though the patient be in this manner relieved, it frequently happens, that when the operation of the opium is over, the disease shows a tendency to return; and, for at least some days after the first attack, the irritability of the intestines, and their disposition to fall into painful spasmodic contractions, seem to continue. In this situation, the repetition of the opiates, for perhaps several days, may come to be necessary; and as the debility commonly induced by the disease favours the disposition to spasmodic affections, it is often useful and necessary, together with the opiates, to employ the tonic powers of the Peruvian bark.

CHAP. XI.—OF DIARRHŒA OR LOOSENESS.

"It is with difficulty that I have employed this genus, as it is not very consistent with our plan to let it stand in our Nosology. Diarrhœa is universally symptomatic of a great variety of diseases, many of which are different from one another; so that a genus formed from all these is a very complicated one, and comprehends very dissimilar affections and diseases, and there is no use in uniting these under the title of a genus.

"I allow that Nosology is of very little service except in assisting us to investigate the different species of diseases, so that there is little use in establishing genera, unless we arrive at taking in view the whole of the species together, and establish a generic method of cure. That cannot be done in the case of diarrhœa; but I introduce the disease as a piece of pathology rather than of nosology; and I have one particular purpose, that is, to point out its opposition to dysentery, to which distinction the character which I have given to it is almost entirely directed."

MCCCCLXV. This disease consists in evacuations by stool, more frequent, and of more liquid matter than usual. This leading and characteristic symptom is so diversified in its degree, in its causes, and in the variety of matter evacuated, that it is almost impossible to give any general history of the disease.

MCCCCLXVI. It is to be distinguished from dysentery, by not being contagious; by being generally without fever; and by being with the evacuation of the natural excrements, which are, at least for some time, retained in dysentery. The two diseases have been commonly distinguished by the gripings being more violent in the dysentery; and they are commonly less violent and less frequent in diarrhœa; but as they frequently do occur in this also, and sometimes to a considerable degree, so they do not afford any proper distinction.

MCCCCLXVII. A diarrhœa is to be distinguished from cholera chiefly by the difference of their causes; which, in cholera, is of one peculiar kind; but in diarrhœa is prodigiously diversified, as we shall see presently. It has been common to distinguish cholera by the evacuation downwards being of bilious matter, and by this being always accompanied with a vomiting of the same kind; but it does not universally apply, as a diarrhœa is sometimes attended with vomiting, and even of bilious matter.

MCCCCLXVIII. The disease of diarrhœa, thus distinguished, is very greatly diversified; but, in all cases, the frequency of stools is to be imputed to a preternatural increase of the peristaltic motion in the whole, or at least a considerable portion, of the intestinal canal. This increased action is in different degrees, is often convulsive and spasmodic, and at any rate is a *motus abnormis:* for which reason, in the Methodical Nosology, I have referred it to the order of Spasmi, and accordingly treat of it in this place.

MCCCCLXIX. Upon the same ground, as I consider the disease named Lientery to be an increased peristaltic motion over the whole of the intestinal canal, arising from a peculiar irritability, I have considered it as merely a species of diarrhœa. The idea of a laxity of the intestinal canal being the cause either of lientery or other species of diarrhœa, appears to me to be without foundation, except in the single case of frequent liquid stools from a palsy of the *sphincter ani.*

MCCCCLXX. The increased action of the peristaltic motion, I consider as always the chief part of the proximate cause of diarrhœa: but the disease is further, and indeed chiefly, diversified by the different causes of this increased action, which we are now to inquire into.

MCCCCLXXI. The several causes of the increased action of the intestines may be referred, I think, in the first place, to two general heads.

The *first* is, of the diseases of certain parts of the body which, either from a consent of the intestines with these parts, or from the relation which the intestines have to the whole system, occasion an increased action in the intestines, without the transference of any stimulant matter from the primary diseased part to them.

The *second* head of the causes of the increased action of the intestines is of the stimuli of various kinds, which are applied directly to the intestines themselves.

MCCCCLXXII. That affections of other parts of the system may affect the intestines without the transference or application of any stimulant matter, we learn from hence, that the passions of the mind do in some persons excite diarrhœa.

MCCCCLXXIII. That diseases in other parts may in like manner affect the intestines, appears from the dentition of infants frequently exciting diarrhœa. I believe that the gout often affords another instance of the same kind; and probably there are others also, though not well ascertained.

MCCCCLXXIV. The stimuli (MCCCCLXXI.) which may be applied to the intestines, are of very various kinds; and are either,

1. Matters introduced by the mouth.
2. Matters poured into the intestines by the several excretories opening into them.
3. Matters poured from certain preternatural openings made into them in certain diseases.

MCCCCLXXV. Of those (MCCCCLXXIV. 1.) introduced by the mouth, the first to be mentioned are the aliments commonly taken in. Too great a quantity of these taken in, often prevents their due digestion in the stomach; and by being thus sent in their crude, and probably acrid, state to the intestines, they frequently excite diarrhœa.

The same aliments, though in proper quantity, yet having too great a proportion, as frequently happens, of saline or saccharine matter along with them, prove stimulant to the intestines, and excite diarrhœa.

But our aliments prove especially the causes of diarrhœa, according as they, from their own nature, or from the weakness of the stomach, are disposed to undergo an undue degree of fermentation there, and thereby become stimulant to the intestines. Thus acescent aliments are ready to produce diarrhœa; but whether from their having any directly purgative quality, or only as mixed in an over-proportion with the bile, is not well determined.

MCCCCLXXVI. Not only the acescent, but also the putrescent disposition of the aliments, seems to occasion a diarrhœa; and it appears, that even the effluvia of putrid bodies, taken in any way in large quantity, have the same effect.

Are oils or fats, taken in as a part of our aliments, ever the cause of diarrhœa? and if so, in what manner do they operate?

MCCCCLXXVII. The other matters introduced by the mouth, which may be causes of diarrhœa, are those thrown in either as medicines or poisons, that have the faculty of stimulating the alimentary canal. Thus, in the list of the Materia Medica, we have a long catalogue of those named purgatives; and in the list of poisons, we have many possessed of the same quality. The former, given in a certain quantity, occasion a temporary diarrhœa; and given in very large doses, may occasion it in excess, and continue it longer than usual, producing that species of diarrhœa named a Hypercatharsis.

MCCCCLXXVIII. The matters (MCCCCLXXIV. 2.) poured into the cavity of the intestines from the excretories opening into them, and which may occasion diarrhœa, are either those from the pancreatic or biliary duct, or those from the excretories in the coats of the intestines themselves.

MCCCCLXXIX. What changes may happen in the pancreatic juice, I do not exactly know; but I suppose that an acrid fluid may issue from the pancreas, even while still entire in its structure; but more especially when it is in a suppurated, scirrhous, or cancerous state, that a very acrid matter may be poured out by the pancreatic duct, and occasion diarrhœa.

MCCCCLXXX. We know well, that from the biliary duct the bile may be poured out in greater quantity than usual; and there is little doubt of its being also sometimes poured out of a more than ordinary acrid quality. It is very probable, that in both ways the bile is frequently a cause of diarrhœa.

Though I have said above that diarrhœa may be commonly distinguished from cholera, I must admit here, that as the causes producing that state of the bile which occasions cholera, may occur in all the different possible degrees of force; so as on one occasion, to produce the most violent and distinctly marked cholera; but, upon another, to produce only the gentlest diarrhœa, which, however, will be the same disease, only varying in degree: so I think it probable, that in warm climates, and in warm seasons, a *diarrhœa biliosa* of this kind may frequently occur, not to be always certainly distinguished from cholera.

However this may be, it is sufficiently probable, that in some cases, the bile, without having been acted upon by the heat of the climate or season, may be redundant and acrid, and prove therefore a particular cause of diarrhœa.

MCCCCLXXXI. Beside bile from the several causes and in the conditions mentioned, the biliary duct may pour out pus, or other matter, from abscesses in the liver, which may be the cause of diarrhœa.

Practical writers take notice of a diarrhœa wherein a thin and bloody liquid is discharged, which they suppose to have proceeded from the liver, and have therefore given the disease the name of Hepatirrhœa; but we have not met with any instance of this kind; and, therefore, cannot properly say any thing concerning it.

MCCCCLXXXII. A second set of excretories, from which matter is poured into the cavity of the intestines, are those from the coats of the intestines themselves; and are either the exhalents proceeding directly from the extremities of arteries, or the excretories from the mucous follicles: and both these sources occur in prodigious number over the internal surface of the whole intestinal canal. It is probable that it is chiefly the effusion from these sources which, in most instances, gives the matter of the liquid stools occurring in diarrhœa.

MCCCCLXXXIII. The matter from both sources may be poured out in larger quantity than usual, merely by the increased action of the intestines, whether that be excited by the passions of the mind (MCCCCLXXII.), by diseases in other parts of the system (MCCCCLXXI. 1.), or by the various stimulants mentioned MCCCCLXXV. and following; or the quantity of matter poured out may be increased, not so much by the increased action of the intestines, as by an increased afflux of fluids from other parts of the system.

Thus, cold applied to the surface of the body, and suppressing perspiration, may determine a greater quantity of fluids to the intestines.

Thus in the *ischuria renalis*, the urine taken into the blood-vessels is sometimes determined to pass off again by the intestines.

In like manner, pus or serum may be absorbed from the cavities in which they have been stagnant, and be again poured out into the intestines, as frequently happens, in particular with respect to the water of dropsies.

MCCCCLXXXIV. It is to be observed here, that a diarrhœa may be excited not only by a copious afflux of fluids from other parts of the system, but likewise by the mere determination of various acrid matters from the mass of blood into the cavity of the intestines. Thus it is supposed, that the morbific matter of fevers is sometimes thrown out into the cavity of the intestines, and gives a critical diarrhœa; and whether I do or do not admit the doctrine of critical evacuations, I think it is probable that the morbific matter of the exanthemata is frequently thrown upon the intestines, and occasions diarrhœa.

MCCCCLXXXV. It is to me further probable, that the putrescent matter diffused over the mass of blood in putrid diseases, is frequently poured out by the exhalents into the intestines, and proves there the cause, at least in part, of the diarrhœa so commonly attending these diseases.

MCCCCLXXXVI. Upon this subject of the matters poured into the cavity of the intestines, I have chiefly considered them as poured out in unusual quantity; but it is probable that, for the most part, they are also changed in their quality, and become of a more acrid and stimulant nature, upon which account especially it is that they excite, or at least increase a diarrhœa.

MCCCCLXXXVII. How far, and in what manner, the exhalent fluid may be changed in its nature and quality, we do not certainly know; but with respect to the fluid from the mucous excretories, we know, that, when poured out in unusual quantity, it is commonly, at the same time, in a more liquid and acrid form; and may prove therefore considerably irritating.

MCCCCLXXXVIII. Though the copious effusion of a more liquid and acrid matter from the mucous excretories, be probably owing to the matter being poured out immediately as it is secreted from the blood into the mucous follicles, without being allowed to stagnate in the latter, so as to acquire that milder quality and thicker consistence we commonly find in the mucus in its natural state; and although we might suppose that the excretions of a thin and acrid fluid should always be the effect of every determination to the mucous follicles, and of every stimulant applied to them; yet it is certain, that the reverse is sometimes the case; and that, from the mucous follicles, there is frequently an increased excretion of a mucus, which appears in its proper form of a mild, viscid, and thickish matter. This commonly occurs in the case of dysentery; and it has been observed to give a species of diarrhœa, which has been properly named the *Diarrhœa mucosa*.

MCCCCLXXXIX. A third source of matter, poured into the cavity of the intestines, and occasioning diarrhœa (MCCCCLXXIV. 3.), is from those preternatural openings produced by diseases in the intestines or neighbouring parts. Thus the blood-vessels on the internal surface of the intestines may be opened by erosion, rupture, or anastomosis, and pour into the cavity their blood, which, either by its quantity, or by its acrimony, whether inherent or acquired by stagnation, may sometimes give a diarrhœa evacuating bloody matter. This is what I think happens in that disease which has been called the *Melæna* or *Morbus Niger*.

MCCCCXC. Another preternatural source of matter poured into the cavity of the intestines, is the rupture of abscesses seated either in the coats of the intestines themselves, or in any of the contiguous viscera, which, during an inflamed state, had formed an adhesion with some part of the intestines. The matter thus poured into their cavity may be various; purulent, or sanious, or both together, mixed at the same time with more or less of blood; and in each of these states may be a cause of diarrhœa.

MCCCCXCI. Amongst the stimuli that may be directly applied to the intestines, and which, by increasing their peristaltic motion, may occasion diarrhœa, I must not omit to mention worms, as having frequently that effect.

MCCCCXCII. I must also mention here a state of the intestines, wherein their peristaltic motion is preternaturally increased, and a diarrhœa produced; and that is, when they are affected with an erythematic inflammation. With respect to the existence of such a state, and its occasioning diarrhœa, see what is said above in CCCXCVIII. and following. Whether it is to be considered as a particular and distinct case of diarrhœa, or is always the same with some of those produced by one or other of the causes above mentioned, I have not been able to determine.

MCCCCXCIII. Lastly, by an accumulation of alimentary or of other matter poured into the cavity of the intestines from several of the sources above-mentioned, a diarrhœa may be especially occasioned, when the absorption of the lacteals, or of other absorbents, is prevented either by an obstruction of their orifices, or by an obstruction of the mesenteric glands, through which alone the absorbed fluids can be transmitted.

In one instance of this kind, when the chyle prepared in the stomach and duodenum is not absorbed in the course of the intestines, but passes off in considerable quantity by the anus, the disease has been named *Morbus cœliacus*, or simply and more properly *Cœliaca*; which accordingly I have considered as a species of diarrhœa.

MCCCCXCIV. I have thus endeavoured to point out the various species of disease that may come under the general appellation of Diarrhœa; and from that enumeration it will appear, that many, and indeed the greater part of the cases of diarrhœa, are to be considered as sympathic affections, and to be cured only by curing the primary disease upon which they depend; of which, however, I cannot properly treat here. From our enumeration it will also appear, that many of the cases of diarrhœa which may be considered as idiopathic, will not require my saying much of them here. In many instances, the disease is ascertained, and also the cause assigned, by the condition of the matter evacuated; so that what is necessary to correct or remove it will be sufficiently obvious to practitioners of any knowledge. In short, I do not find that I can offer any general plan for the cure of diarrhœa; and all that I can propose to do on this subject, is to give some general remarks on the practice that has been commonly followed in the cure of this disease.

MCCCCXCV. The practice in this disease has chiefly proceeded upon the supposition of an acrimony in the fluids, or of a laxity in the simple and moving fibres of the intestines; and the remedies employed have accordingly been correctors of particular acrimony, general demulcents, evacuants by vomiting or purging, astringents, or opiates. Upon each of these kinds of remedy I shall now offer some remarks.

MCCCCXCVI. An acid acrimony is, upon several occasions, the cause of diarrhœa, particularly in children; and in such cases the absorbent earths have been very properly employed. The common, however, and promiscuous use of these, has been very injudicious; and where there is any putrescency, they must be hurtful.

MCCCCXCVII. The cases in which there is a putrid or putrescent acrimony prevailing, have been, I think, too seldom taken notice of; and, therefore, the use of acids too seldom admitted. The acrimony to be suspected in bilious cases, is probably of the putrescent kind.

MCCCCXCVIII. The general correctors of acrimony are the mild diluents and demulcents. The former have not been so much employed in diarrhœa as they ought; for, joined with demulcents, they very much increase the effects of the latter; and although the demulcents, both mucilaginous and oily, may by themselves be useful, yet without the assistance of diluents they can hardly be introduced in such quantity as to answer the purpose.

MCCCCXCIX. As indigestion and crudities present in the stomach are so often the cause of diarrhœa, vomiting must therefore be frequently very useful in this disease.

In like manner, when the disease proceeds, as it often does, from obstructed perspiration, and increased afflux of fluids to the intestines, vomiting is perhaps the most effectual means of restoring the determination of the fluids to the surface of the body.

It is possible also, that vomiting may give some inversion of the peristaltic motion which is determined too much downwards in diarrhœa; so that, upon the whole, it is a remedy which may be very generally useful in this disease.

MD. Purging has been supposed to be more universally necessary, and has been more generally practised. This, however, in my opinion, proceeds upon very mistaken notions with respect to the disease; and such a practice seems to me for the most part superfluous, and in many cases very hurtful. It goes upon the supposition of an acrimony present in the intestines, that ought to be carried out by purging; but if that acrimony has either been introduced by the mouth, or brought into the intestines from other parts of the body, purging can neither be a means of correcting nor exhausting it; and must rather have the effect of increasing its afflux, and of aggravating its effects. From whatever source the acrimony which can excite a diarrhœa proceeds, it may be supposed sufficient to evacuate itself, so far as that can be done by purging; and as in cholera, so in the same kind of diarrhœa, it will be more proper to assist the evacuations by diluents and demulcents, than to increase the irritation by purgatives.

MDI. If, then, the use of purgatives in diarrhœa may be considered, even when an acrimony is present, as superfluous, there are many other cases in which it may be extremely hurtful. If the irritability of the intestines shall, from affections in other parts of the system, or other causes, have been already very much increased, purgatives must necessarily aggravate the disease. In the case of lientery, nobody thinks of giving a purgative; and in many cases of diarrhœa approaching to that, they must be equally improper. I have already observed, that when diarrhœa proceeds from an afflux of fluids to the intestines, whether in too great quantity, or of an acrid quality, purgatives may be hurtful; and whoever, therefore, considers the numerous and various sources from which acrid matter may be poured into the cavity of the intestines, will readily perceive, that, in many cases of diarrhœa, purgatives may be extremely pernicious.

There is one case in particular to be taken notice of. When, from a general and acrid dissolution of the blood, the serous fluids run off too copiously into the cavity of the intestines, and excite that diarrhœa which attends the advanced state of hectic fever, and is properly called a Colliquative Diarrhœa; I have, in such cases, often seen purgatives given with the most baneful effects.

There is still another case of diarrhœa in which purgatives are pernicious; and that is, when the disease depends, as we have alleged it sometimes may, upon an erythematic inflammation of the intestines.

I need hardly add, that if there be a case of diarrhœa depending upon a laxity of the solids, purgatives cannot there be of any service, and may do much harm. Upon the whole, it will, I think, appear, that the use of purgatives in diarrhœa is very much limited; and that the promiscuous use of them, which has been so common, is injudicious, and often pernicious. I believe the practice has been chiefly owing to the use of purgatives in dysenteric cases, in which they are truly useful; because, contrary to the case of diarrhœa, there is in dysentery a considerable constriction of the intestines.

MDII. Another set of remedies employed in diarrhœa are astringents. There has been some hesitation about the employment of these in recent cases, upon the supposition that they might occasion the retention of an acrid matter that should be thrown out. I cannot, however, well understand or assign the cases in which such caution is necessary; and I think that the power of astringents is seldom so great as to render their use very dangerous. The only difficulty which has occurred to me, with respect to their use, has been to judge of the circumstances to which they are especially adapted. It appears to me to be only in those where the irritability of the intestines depends upon a loss of tone; and this, I think, may occur either from the debility of the whole system, or from causes acting on the intestines alone. All violent or long-continued spasmodic and convulsive affections of the intestinal canal necessarily induce a debility there: and such causes often take place, from violent irritation, in colic, dysentery, cholera, and diarrhœa.

MDIII. The last of the remedies of diarrhœa that remain to be mentioned are opiates. The same objections have been made to the use of these, in recent cases of diarrhœa, as to that of astringents; but on no good grounds: for the effect of opiates, as astringent, is never very permanent; and an evacuation depending upon irritation, though it may be for some time suspended by opiates, yet always returns very soon. It is only by taking off irritability that opiates are useful in diarrhœa; and, therefore, when the disease depends upon an increase of irritability alone, or when, though proceeding from irritation, that irritation is corrected or exhausted, opiates are the most useful and certain remedy. And though opiates are not suited to correct or remove an irritation applied, they are often of great benefit in suspending the effects of that irritation whenever these are violent: and, upon the whole, it will appear, that opiates may be very frequently, and with great propriety, employed in the cure of diarrhœa.

CHAP. XII.—OF THE DIABETES.

MDIV. This disease consists in the voiding of an unusually large quantity of urine.

As hardly any secretion can be increased without an increased action of the vessels concerned in it, and as some instances of this disease are attended with affections manifestly spasmodic, I have had no doubt of arranging the diabetes under the order of Spasmi.

MDV. This disease is always accompanied with a great degree of thirst, and therefore with the taking in of a great quantity of drink. This in some measure accounts for the very extraordinary quantities of urine voided: but still, independent of this, a peculiar disease certainly takes place; as the quantity of urine voided does almost always exceed the whole of the liquids, and sometimes the whole of both solids and liquids, taken in.

MDVI. The urine voided in this disease is always very clear, and at first sight appears entirely without any colour; but, viewed in a certain light, it generally appears to be slightly tinged with a yellowish green, and in this respect has been very properly compared to a solution of honey in a large proportion of water.

Examined by the taste, it is very generally found to be more or less sweet; and many experiments that have now been made in different instances of the disease, show clearly that such urine contains, in considerable quantity, a saccharine matter which appears to be very exactly of the nature of common sugar.

MDVII. Dr. Willis seems to me to have been the first who took notice of the sweetness of the urine in diabetes, and almost every physician of England has since taken notice of the same. It is to be doubted, indeed, if there is any case of idiopathic diabetes in which the urine is of a different kind. Though neither the ancients, nor, in the other countries of Europe, the moderns, till the latter were directed to it by the English, have taken notice of the sweetness of the urine, it does not persuade me, that either in ancient or in modern times the urine in diabetes was of another kind. I myself, indeed, think I have met with one instance of diabetes in which the urine was perfectly insipid, and it would seem that a like observation had occurred to Dr. Martin Lister. I am persuaded, however, that such instances are very rare; and that the other is by much the more common, and perhaps the almost universal occurrence. I judge, therefore, that the presence of such a saccharine matter may be considered as the principal circumstance in idiopathic diabetes; and it gives at least the only case of that disease that I can properly treat of here, for I am only certain that what I am further to mention relates to such a case.

MDVIII. The antecedents of this disease, and consequently the remote causes of it, have not been well ascertained. It may be true, that it frequently happens to men who, for a long time before, had been intemperate in drinking; that it happens to persons of a broken constitution, or who, as we often express it, are in a cachectic state; that it sometimes follows intermittent fevers; and that it has often occurred from excess in the drinking of mineral waters. But none of these causes apply very generally to the cases that occur: such causes are not always, nor even frequently, followed by a diabetes; and there are many instances of diabetes which could not be referred to any of them. In most of the cases of this disease which I have met with, I could not refer it to any particular cause.

MDIX. This disease commonly comes on slowly, and almost imperceptibly, without any previous disorder. It often arises to a considerable degree, and subsists long without being accompanied with evident disorder in any particular part of the system. The great thirst which always, and the voracious appetite which frequently occurs in it, are often the only remarkable symptoms. Under the continuance of the disease, the body is often greatly emaciated; and a great weakness also prevails. The pulse is commonly frequent; and an obscure fever is for the most part present. When the disease proves fatal, it generally ends with a fever, in many circumstances, particularly those of emaciation and debility, resembling a hectic.

"I have found the cases of diabetes, with which I have met, to be attended with an unusual dryness of the skin: in one case it was not only dry and cold, but manifestly shrunk and shrivelled; and I found, that by warm bathing I could restore it to its usual moisture and softness, and that by friction the heat of the skin could be restored; and as this circumstance took place, the urine was diminished in proportion. Another patient I made go to a warmer climate. He had come from the dry rock of Gibraltar, in consequence of which he was seized with the diabetes; I advised him to return, he followed my advice, was cured of the disease, and has continued perfectly well ever since, making his return to a colder country gradually."

MDX. The proximate cause of this disease is not certainly or clearly known. It seems to have been sometimes connected with calculous affections of the kidneys; and it is possible, that an irritation applied there may increase the secretion of urine. It perhaps often does so; but how it should produce the singular change that takes place in the state of the urine, is not to be easily explained. It certainly often happens, that calculous matters are long present in the urinary passages, without having any such effect as that of producing diabetes in any shape.

Some have supposed, that the disease occurs from a relaxed state of the secretory vessels of the kidneys; and indeed, the dissections of persons who had died of this disease, have shown the kidneys in a very flaccid state. This, however, is probably to be considered as rather the effect than the cause of the disease.

That no topical affection of the kidneys has a share in producing this disease, and that a fault in the assimilation of the fluids is rather to be blamed, I conclude from hence, that even the solid food taken in, increases the quantity of the urine voided, at the same time with an increase of the saccharine matter above mentioned.

MDXI. The diabetes has been supposed to be owing to a certain state of the bile; and it is true, that this disease has sometimes occurred in persons who were at the same time affected with diseases of the liver: but this occurrence does not often take place; and the diabetes frequently occurs separately from any affection of the liver. In twenty instances of diabetes which I have seen, there was not in any one of them any evident affection of the liver.

The explanation that has been offered of the nature and operation of the bile, in producing diabetes, is very hypothetical, and nowise satisfying.

MDXII. As I have already said, I think it probable, that in most cases the proximate cause of this disease is some fault in the assimilatory powers, or in those employed in converting alimentary matters into the proper animal fluids. This I formerly hinted to Dr. Dobson, and it has been prosecuted and published by him; but I must own that it is a theory embarrassed with some difficulties which I cannot at present very well remove.

MDXIII. The proximate cause of diabetes being so little known or ascertained, I cannot propose any rational method of cure in the disease. From the testimony of several authors, I believe that the disease has been cured; but I believe also, that this has seldom happened; and when the disease has been cured, I doubt much if it was effected by the several remedies to which these cures have been ascribed. In all the instances of this disease which I myself have seen, and in several others of which I have been informed, no cure of it has ever been made in Scotland, though many instances of it have occurred, and in most of them the remedies recommended by authors have been diligently employed. I cannot, therefore, with any advantage, enter into a detail of these remedies; and as the disease, together with its several circumstances, when they shall hereafter occur, is likely to become the subject of diligent investigation, I avoid going farther at present, and judge it prudent to suspend my opinion till I shall have more observations and experiments upon which I can form it more clearly.

CHAP. XIII.—OF THE HYSTERIA, OR THE HYSTERIC DISEASE.

MDXIV. The many and various symptoms which have been supposed to belong to a disease under this appellation, render it extremely difficult to give a general character or definition of it. It is, however, proper in all cases to attempt some general idea; and therefore, by taking the most common form, and that concurrence of symptoms by which it is principally distinguished, I have formed a character in my system of Methodical Nosology, and shall here endeavour to illustrate it by giving a more full history of the phenomena.

MDXV. The disease attacks in paroxysms or fits. These commonly begin by some pain and fulness felt in the left side of the belly. From this a ball seems to move with a grumbling noise into the other parts of the belly; and, making, as it were, various convolutions there, seems to move into the stomach; and more distinctly still rises up to the top of the gullet, where it remains for some time, and by its pressure upon the larynx gives a sense of suffocation. By the time that the disease has proceeded thus far, the patient is affected with a stupor and insensibility, while at the same time the body is agitated with various convulsions. The trunk of the body is writhed to and fro, and the limbs are variously agitated; commonly the convulsive motion of one arm and hand, is that of beating, with the closed fist, upon the breast very violently and repeatedly. This state continues for some time, and has during that time some remissions and renewals of the convulsive motions; but they at length cease, leaving the patient in a stupid and seemingly sleeping state. More or less suddenly, and frequently with repeated sighing and sobbing, together with a murmuring noise in the belly, the patient returns to the exercise of sense and motion, but generally without any recollection of the several circumstances that had taken place during the fit.

MDXVI. This is the form of what is called an *hysteric* *paroxysm*, and is the most common form; but its paroxysms are considerably varied in different persons, and even in the same person at different times. It differs by having more or fewer of the circumstances above mentioned; by these circumstances being more or less violent; and by the different duration of the whole fit.

Before the fit, there is sometimes a sudden and unusually large flow of limpid urine. At the coming on of the fit, the stomach is sometimes affected with vomiting, the lungs with considerable difficulty of breathing, and the heart with palpitations. During the fit, the whole of the belly, and particularly the navel is drawn strongly inwards; the sphincter ani is sometimes so firmly constricted as not to admit of a small glyster-pipe, and there is at the same time an entire suppression of urine. Such fits are, from time to time, ready to recur; and during the intervals the patients are liable to involuntary motions, to fits of laughing and crying, with sudden transitions from the one to the other; while sometimes false imaginations, and some degree of delirium, also occur.

MDXVII. These affections have been supposed peculiar to the female sex, and indeed they most commonly appear in females; but they sometimes, though rarely, attack also the male sex, never, however, that I have observed, in the same exquisite degree.

In the female sex, the disease occurs especially from the age of puberty to that of thirty-five years;—" and especially in that interval which, when on the subject of hæmorrhagy, I alleged to be the plethoric period of the animal economy;"—and though it does sometimes, yet it very seldom appears before the former, or after the latter of these periods.

At all ages, the time at which it most readily occurs is that of the menstrual period.

The disease more especially affects the females of the most exquisitely sanguine and plethoric habits; and frequently affects those of the most robust and masculine constitutions.

It affects the barren more than the breeding women, and therefore frequently young widows.

It occurs especially in those females who are liable to the Nymphomania; and the Nosologists have properly enough marked one of the varieties of this disease by the title of *Hysteria libidinosa.*

In the persons liable to the fits of this disease, it is readily excited by the passions of the mind, and by every considerable emotion, especially those brought on by surprise.

The persons liable to this disease acquire often such a degree of sensibility, as to be strongly affected by every impression that comes upon them by surprise.

MDXVIII. In this history there appears to be a concurrence of symptoms and circumstances properly marking a very particular disease, which I think may be distinguished from all others. It seems to me to have been improperly considered by physicians as the same with some other diseases, and particularly with hypochondriasis. The two diseases may have some symptoms in common, but for the most part are considerably different.

Spasmodic affections occur in both diseases; but neither so frequently, nor to so great a degree, in hypochondriasis as in hysteria.

Persons liable to hysteria are sometimes affected at the same time with dyspepsia. They are often, however, entirely free from it; but I believe this never happens to persons affected with hypochondriasis.

These different circumstances mark some difference in the two diseases; but they are still more certainly distinguished by the temperament they attack, and by the time of life at which they appear to be most exquisitely formed.

It has been generally supposed, that the two diseases differ only in respect of their appearing in different sexes. But this is not well founded; for although the hysteria appears most commonly in females, the male sex is not absolutely free from it, as I have observed above; and although the hypochondriasis may be most frequent in men, the instances of it in the female sex are very common.

"Upon this occasion I use an illustration which I think applicable. Considering how much the several parts of the human body are connected, and how much its several functions depend upon one another, we will not wonder that their morbid affections should be often mixed. The effect of this is indeed, that we have no universal distinctions; and in a few cases only, we have exact limits between analogous and somewhat similar diseases. It is the business of the system to extricate us from this confusion, to teach us to distinguish with precision and accuracy; while in some cases we must remain in some doubt and difficulty. Purple is a compound of red and blue; and there are some purples in which it is difficult to say whether the red or the blue prevails; but in many other cases we distinguish them; and whether we can distinguish in all cases or not, this never embarrasses us in distinguishing between blue and red when these colours are totally separated. So these diseases may also be mixed in certain degrees; but that does not prevent them from being truly, and very often totally distinct and distinguishable diseases; and after considering both the one and the other, I believe that the difficulty of distinguishing them will seldom occur."

MDXIX. From all these considerations, it must, I think, appear, that the hysteria may be very well and properly distinguished from hypochondriasis.

Further, it seems to me to have been with great impropriety, that almost every degree of the irregular motions of the nervous system has been referred to the one or other of these two diseases. Both are marked by a peculiarity of temperament, as well as by certain symptoms commonly accompanying that; but some of these, and many others usually marked by the name of nervous symptoms, may, from various causes, arise in temperaments different from that which is peculiar to either hysteria or hypochondriasis, and without being joined with the peculiar symptoms of either the one or the other disease: so that the appellations of Hysteric and Hypochondriac are very inaccurately applied to them. Under what view these symptoms are otherwise to be considered, I am not ready to determine; but must remark, that the appellation of Nervous Diseases is too vague and undefined to be of any useful application.

MDXX. Having thus endeavoured to distinguish hysteria from every other disease, I shall now attempt its peculiar pathology. With respect to this, I think it will, in the first place, be obvious, that its paroxysms begin by a convulsive and spasmodic affection of the alimentary canal, which is afterwards communicated to the brain, and to a great part of the nervous system. Although the disease appears to begin in the alimentary canal, yet the connexion which the paroxysms so often have with the menstrual flux, and with the diseases that depend on the state of the genitals, shows, that the physicians have at all times judged rightly in considering this disease as an affection of the uterus and other parts of the genital system.

MDXXI. With regard to this, however, I can go no farther. In what manner the uterus, and in particular the ovaria, are affected in this disease; how the affection of these is communicated, with particular circumstances, to the alimentary canal; or how the affection of this, rising upwards, affects the brain, so as to occasion the particular convulsions which occur in this disease, I cannot pretend to explain.

But although I cannot trace this disease to its first causes, or explain the whole of the phenomena, I hope, that with respect to the general nature of the disease, I may form some general conclusions, which may serve to direct our conduct in the cure of it.

MDXXII. Thus, from a consideration of the predisponent and occasional causes, it will, I think, appear, that the chief part of the proximate cause is a mobility of the system, depending generally upon its plethoric state.

MDXXIII. Whether this disease ever arises from a mobility of the system, independent of any plethoric state of it, I cannot positively determine; but in many cases that have subsisted for some time, it is evident that a sensibility and consequently a mobility, are acquired, which often appear when neither a general plethora can be supposed to subsist, nor an occasional turgescence to have happened. However, as we have shown above, that a distention of the vessels of the brain, seems to occasion epilepsy, and that a turgescence of the blood in the vessels of the lungs seems to produce asthma; so analogy leads me to suppose, that a turgescence of blood in the uterus, or in other parts of the genital system, may occasion the spasmodic and convulsive motions which appear in hysteria. It will, at the same time, be evident, that this affection of the genitals must especially occur in plethoric habits; and every circumstance mentioned in the history of the disease, serves to confirm this opinion with respect to its proximate cause.

"The *Prognosis*. By the repetition of hysterical paroxysms, frequently the irritability of the system may be so increased, as in a manner to render the disease habitual, or at least to allow the slightest occasional cause to excite it: but any habitual disease must be of very difficult cure, as it is necessary to change what is now become a law of the system. But, besides this, if the irritability be so increased as to allow the slightest occasional cause to produce the distemper anew, our cure must also be very precarious; for the slightest trespass in any of the non-naturals may baffle our remedies.

"The immoderate use of venery, as it is a matter in which the physician is not consulted, may often have this effect; but the indulgence or excitement of the passions is still of worse consequence, and is equally out of the power (or at least inclination) of the patient, as well as of the physician, to moderate.

"The hysteric disease can be, and I believe often is, renewed at pleasure. This, I know, is often doubted, but I believe rather because it is difficult to explain, how involuntary motions should thus be raised than from any weakness in the evidence for the fact; it will not be so extraordinary, however, if we reflect on the following observations: Merely by recalling to my imagination any piece of indiscretion which I thought I had committed, I have in my chamber, and alone, often blushed as warmly as when the indiscretion was committed. Many laugh by themselves in the same way, and still more can, by the imagination of mournful scenes, induce a flow of tears. None of these, however, are voluntary motions; but they serve to show, that by teaching, as it were, the imagination to recall at pleasure the ideas which can excite such and such motions and involuntary actions, we can in a manner render such emotions and actions subservient to the will. I knew a lady who was subject to violent hysterics, for which for a long time I could assign no reason, till at length, on mentioning by chance the name of a man from whom she had received the grossest injuries, she fell into a severe paroxysm, and then it appeared that they always came on when she thought of that person. To nothing else can we ascribe the cases of those on whom the Romish priests exercised their exorcisms, or those who in this country were accused of witchcraft; the account of whom, on a strict collection of evidences on both sides, I find to be undeniable.

"And now this is the proper place for mentioning the fact which shows the power of the sensorium over the organs of sensation. Take a feather, and by tickling the mouth of any person of a sensible and moveable system, excite the convulsive contraction of the muscles of the face; repeat the same once or twice; then approach the feather near the mouth, and the person will feel the sensation of tickling as much as formerly, and have the same convulsive motions excited."

MDXXIV. From this view of the subject, the analogy of hysteria and epilepsy will readily appear; and why, therefore, I am to say that the indications of cure are the same in both.

As the indications, so the several means of answering them are so much the same in both diseases, that the same observations and directions, with regard to the choice and employment of these remedies, that have been delivered above on the subject of epilepsy, will apply pretty exactly to hysteria, and therefore need not be repeated here.

"The method of cure depends upon removing the paroxysm when present, and in the intervals endeavouring to prevent its return.

"We must endeavour to remove the paroxysm, both because in certain cases it may prove fatal, and also that, independently of immediate danger, it considerably affects the constitution, giving a habit and a foundation for the repetition of the fits.

"The practice during the time of the fits turns upon blood-letting, and on the use of certain antispasmodics. It is common among practitioners, on every appearance of the violence of the disease, to have recourse to blood-letting; and, considering the plethoric state, blood-letting may be of service in moderating the paroxysm or bringing the person sooner out of it; but it will be obvious that when the disease depends entirely upon mobility, this is a precarious remedy, and not likely to be of great service: and I say further, that whilst it is, in some measure, to be confined to plethoric cases, it is even then properly practised only upon the first attack of the disease; for we know that a frequent repetition of bleeding rather brings on that plethora which it should obviate; and in the repetition of the fits, habit has more share in exciting the disease than plethora.

" Another means of removing the paroxysm is taken from the consideration, that the disorder, as it turns out in effect, produces a comatose state. Hence stimuli were thought of; the most powerful and most immediately applicable of which are heat and cold.

" Whytt has shewn the good effects of heat, especially when applied in the shape of bathing. The pediluvium, which he recommends, is, in many cases, extremely serviceable, but in others entirely ineffectual. Thus it is of less use in remarkably plethoric habits, and we may add, too, of less safety, as stimuli tend here to rarefy the blood. But in less plethoric habits, and where the disorder seems to have arisen from inanition, particularly where it doth not come on from any sudden agitation of passion, but arises from some more obvious cause, beginning, perhaps, with cold at the extremities, and ascending upwards: in these cases a pediluvium is very serviceable. We speak here of an hysterical paroxysm of the limbs. In giving a general tension to the whole system, too, by applying a stimulus to particular parts, heat has considerable effects, and the pediluvium is of greater service than a fomentation.

" Another very efficacious power, and very soon applicable, is that of cold. This has a very great effect in preventing the return of the fit when applied in the interval, but during the paroxysm its effects are more ambiguous. If we could apply it to the whole system at once, whilst the spasms continued, it might be very serviceable; but as we can apply it only to particular parts, whilst it diminishes the nervous impetus in some parts, it increases it in others, which increases the paroxysm. Immersing the hands in cold water, or sprinkling some upon the face, just before the fit, is sometimes found to prevent it, but sometimes to bring it on faster. But when the fits come to the comatose state, this is one means of recovering the patient sooner.

"Another set of stimuli is found in medicines. Whether these are to be considered merely as stimuli, or also as antispasmodics, we shall not here determine. At least they are of a peculiar kind, and all stimuli are not equally useful. Those are most generally used which are the most active, as volatile alkali: and this applies to an organ which most readily communicates with the whole system, namely the smell; for, in the hysteric paroxysm we cannot introduce any thing by the mouth and stomach. This seems to act merely as a stimulus. But, in empyreumatics, as in burnt animal substances, there is a mixture of qualities, there being both a volatile alkali, and empyreumatic oil; and whether these act as a stimulus only, or also as antispasmodics, is not certain.

"Analogous to these empyreumatics, are the fossil oils. The Oleum succini is the most usually employed of these; but that met with in the shops is in general very ineffectual, being never pure or genuine, but consisting chiefly of the oil of turpentine. The oil of amber, when in its properly rectified state, is a very powerful medicine. Besides applying these medicines to the nose, we may also introduce them by a glyster, though the sphincter ani is sometimes so much contracted as not to allow us to proceed that way; administered in this manner, they are found to be more powerful than any fomentation.

"With regard to the application of fœtid antispasmodic medicines, a great variety has been proposed: there is little in the choice, further than that strong impressions are necessary, and those of different kinds.

"These are the methods used to remove the hysteric paroxysm. I go on to what is of more importance, the practice in the intervals of the fits, in order to prevent their recurrence. The indications are precisely the same as in epilepsy:

"1. To avoid occasional causes.—This is sometimes very difficult, as the passions are the chief of these occasional causes. Thus, if an excess in venery is the occasional causes, we can but seldom know this, or prevent a repetition of it. It is the same in the case of the other passions. A sagacious physician may, however, frequently discover these, and often be able to give the patient proper directions how to avoid them. But his proper business is to correct the predisposing cause, and enable the patient to resist occasional causes.

"It is the indolent and luxurious life which leads to the plethoric state that is very often the cause of the disease: and it is hardly to be expected that people will give up indolence, late hours, and full living, for the fear of a distant evil. I had occasion to know a person who laboured heavily under hysterics, when, by her easy circumstances, she was enabled to lead an idle life: but a sudden reverse of fortune obliging her to employ both body and mind, she got perfectly well.

"2. To take off the plethoric state where it prevails.—We think we may obviate this by evacuations; and accordingly, blood-letting is a very general practice. Its use, however, is very precarious in curing this plethoric state; for, sometimes, instead of preventing the recurrence of it, it will even induce and increase it. It requires, therefore, a very nice attention to judge what quantity of blood may be taken away, when the quantity will be recovered again, and whether it may be repeated before the quantity is recovered, always diminishing it each time. This has been mentioned by other practitioners; but it should be attended to in particular in this view, that if we produce an inanition, we do as much harm in inducing the disease, as the plethoric state did before. Accordingly this disorder is frequently produced by too copious blood-lettings. Thus, in a particular case, a plethoric young women had her menses stopped by taking cold, and finding a distention to arise from this circumstance, was bled three or four times by her own directions; in consequence of which she was attacked with a severe hysterical disorder, which still continues. Venesection, therefore, is very dangerous, either as it may increase the plethora, or induce inanition, and it is only to be used in recent cases, and where there is manifestly a full habit.

"Indeed we could never recommend the obviating a plethoric habit by this, but rather by low diet and exercise. From the frequent mixture of dyspepsia with epilepsy, it has been common to prescribe to our patients a full animal diet, than which nothing has been more pernicious. On the contrary, a spare diet has been of remarkable service in preventing the recurrence of the disease. When there are no great symptoms of dyspepsia, and when there is a plethoric state, there is no doubt, that a spare vegetable diet is necessary. But even when the plethoric state is not very remarkable, when the disease depends upon mobility, even then any degree of fulness is apt to increase it, and to favour its recurrence.

"3. By diminishing the mobility of the system.—I need not say, that this is to be obviated rather by being much in the fresh air, by cold bathing, by proper exercise, and by a proper conduct and employment of the mind, than by any medicines. Antispasmodics however are constantly employed, and almost as constantly we lose our labour, for we employ these remedies at all times during the interval: they are of very little service, and only at the approach of the fits their effects are remarkable; and when persons are accustomed to the constant use of asafoetida, we also lose a remedy which might be employed with advantage at the time of the accession.

"Tonics may be of service, when the disease depends upon general debility: but we must take care how often a plethoric state, especially in the uterus, is more or less joined with hysteria: and there the use of tonics is suspicious, and their frequent and long continued employment may possibly do harm: they should be confined therefore to cases of pure mobility, particularly with a periodical recurrence; when their moderate use may be of service.

"When I speak of the mischief from tonics, however, I mean vegetable tonics, bitters and the bark. I cannot say how far it is to be apprehended from metallic tonics, which have been used with more freedom, and alleged to be more powerful. As in epilepsy, so in hysteria also practitioners speak much of the use of tin: I cannot refuse their facts, but I have not myself seen any effects from it. I have tried the use of copper, but found its effects even less decisively marked than in the case of epilepsy.

"The diminution of the mobility of the system may also be effected by a proper management of the passions. These have a very different effect, some acting as stimuli, others as diminishing the nervous power. Of these last, called *pathemata reprimentia*, is fear. But this has an ambiguous effect, and frequently, when the sensibility and irritability are much increased, fear will bring on the disorder. As it is hard then, to determine, whether it will have a repressing effect, or will incite to action in order to repel the object, we can but rarely apply these *pathemata reprimentia.* But when this fear is brought on less suddenly, and made to excite an apprehension that is permanent, and regards some future rather than present evil, it has an extraordinary effect in epileptic and hysterical cases. The remarkable case of the epilepsy at Haerlem is known by every one. (See MCCCXXXI.)

" A permanent grief and anxiety also, which so often excites hypochondriac disorders, will frequently cure hysterics. Thus in the year 1745, whilst the people laboured under constant anxiety about the rebellion, many nervous patients were observed in Scotland to remain remarkably free from their usual complaints. Persons, too, who have been long subject to nervous disorders, have often by some great misfortunes had these disorders allayed for a considerable time.

" The operation of cold in diminishing the mobility of the system is difficult to explain. We find cold to act as a remarkable stimulus on the system. In this way, then, it may serve to increase the tonic power, and by that means, obviate this mobility. But independently of its stimulating power it may, merely by inducing a contraction, increase the tonic power, and so extend its influence over the whole system. Perhaps, too, cold may act directly in diminishing the mobility. This seems very probable, for when carried to a certain length, it will destroy mobility entirely. In support of this, we find that proper hysteric diseases, depending on this mobility, are more seldom met with in cold countries. Accordingly, instead of a cold bath, living in a cold air is a better method to obviate these disorders, the air here acting as a permanent cold. The common air of our climate is excellently adapted for hysteric patients; while living in warm rooms, over a fire, is sure to increase their complaints. For this reason it is, that in the hottest climates spasmodic distempers are more common and severe than in the more northern. The tetanus, the most violent of this class, is almost peculiar to the torrid zone; while in the same way in Europe, the hysteric disease, and, indeed, spasmodic complaints in general, are more severe in Spain and Italy than in France, Switzerland, or England; and, as I am inclined to think, more so in England than with us. It is, I believe, common for a woman to threaten her husband with a fit in England, which I never knew or heard of here."

"In hysteria, as generally affecting plethoric habits, and depending upon an occasional turgescence of the genital system, I hold *opium* to be an improper, and commonly a hurtful remedy.

"But, on the other hand, in all those cases of unusual feeling and irregular motions, not depending upon a plethoric state, but manifestly upon a mobility of the system, opium is a very certain remedy. Whenever, therefore, these symptoms are in excess, it may be employed, though it be difficult to set the proper limits to its use. There are cases in which its tonic and antispasmodic powers must be frequently repeated; but it is to be remarked, that wherever that necessity does not manifestly occur, the frequent use of it increases the mobility of the system, and creates a seeming necessity that readily induces a habit, which again, constantly indulged, has a tendency to destroy the system altogether.—*M.M.*

CHAP. IX.—OF CANINE MADNESS, AND HYDROPHOBIA.

MDXXV. This disease has been so exactly and fully described in books that are in every body's hands, that it is on no account necessary for me to give any history of it here; and with respect to the pathology of it, I find that I can say nothing satisfying to myself, or that I can expect to prove so to others. I find also, with respect to the cure of this disease, that there is no subject in which the fallacy of experience appears more strongly than in this. From the most ancient to the present times, many remedies for preventing and curing this disease have been recommended under the sanction of pretended experience, and have perhaps also kept their credit for some time; but succeeding times have generally, upon the same ground of experience, destroyed that credit entirely; and most of the remedies formerly employed are now fallen into absolute neglect. In the present age, some new remedies have been proposed, and have experience alleged to vouch for their efficacy; but many doubts still remain with respect to this; and though I cannot determine in this matter from my own experience, I think it incumbent on me to give the best judgment I can form with respect to the choice of the remedies at present recommended.

MDXXVI. I am, in the first place, firmly persuaded, that the most certain means of preventing the consequences of the bite, is to cut out, or otherwise destroy, the part in which the bite has been made. In this every body agrees; but with this difference, that some are of opinion that it can only be effectual when it is done very soon after the wound has been made, and therefore neglect it when this opportunity is missed. There have been, however, no experiments made proper to determine this matter; and there are many considerations which lead me to think that the poison is not immediately communicated to the system; and, therefore, that this measure of destroying the part may be practised with advantage, even many days after the bite has been given.

MDXXVII. Whilst the state of our experience, with respect to several remedies now in use, is uncertain, I cannot venture to assert that any of these is absolutely ineffectual; but I can give it as my opinion, that the efficacy of mercury, given very largely, and persisted in for a long time, both as a means of preventing the disease, and of curing it when it has actually come on, is better supported by experience than that of any other remedy now proposed or commonly employed.

BOOK. IV.

OF VESANIÆ, OR OF THE DISORDERS OF THE INTELLECTUAL FUNCTIONS.

CHAP. I.—OF VESANIÆ IN GENERAL.

" The theory of whatever relates to our intellectual functions as connected with our corporeal part, is involved in much obscurity and difficulty, and was I to attempt it, I should expect to be addressed in the language of Terence:

> ——— ' Incerta hæc si tu postules
> Ratione certa facere, nihilo plus agas
> Quam si des operam ut cum ratione insanias.'

This I must own should not terrify me, for with respect to the difficulty I should not regard the opinion of those who themselves have never tried it, and that is the case of most physicians with respect to our present subject.

" I should not therefore be turned aside by the despondency of indolent and ignorant persons. I am persuaded that diligent inquiry and a cautious collation of facts will bring out some instruction from the most dark and intricate subjects; and in particular on the Vesaniæ, I think we have obtained something to relieve us in part from the random empirical practice which has hitherto prevailed."

MDXXVIII. The Nosologists, Sauvages and Sagar, in a class of diseases under the title of Vesaniæ, have comprehended the two orders of *Hallucinationes* or False Perceptions, and *Morositates* or Erroneous Appetites and Passions; and, in like manner, Linnæus, in his class of MENTALES, corresponding to the Vesaniæ of Sauvages, has comprehended the two orders of *Imaginarii* and *Pathetici*, nearly the same with the *Hallucinationes* and *Morositates* of that author. This, however, from several considerations, appears to me improper; and I have therefore formed a class of Vesaniæ nearly the same with the Paranoiæ of Vogel, excluding from it the Hallucinationes and Morositates, which I have referred to the Morbi Locales. Mr. Vogel has done the like, in separating from the Paranoiæ the false perceptions and erroneous appetites; and has thrown these into another class, to which he has given the title of Hyperæstheses.

MDXXIX. It is indeed true, that certain hallucinationes and morositates are frequently combined with what I propose to consider as strictly a vesania or an erroneous judgment; and sometimes the hallucinationes seem to lay the foundation of, and to form almost entirely the vesania. But as most part of the hallucinationes enumerated by the Nosologists are affections purely topical, and induce no other error of judgment beside that which relates to the single object of the sense or particular organ affected; so these are certainly to be separated from the diseases which consist in a more general affection of the judgment. Even when the hallucinationes constantly accompany or seem to induce the vesania, yet being such as arise from internal causes, and may be presumed to arise from the same cause as the more general affection of the judgment, they are therefore to be considered as symptoms of this only.

In like manner I judge with respect to the morositates, or erroneous passions, that accompany vesania; which, as consequences of a false judgment, must be considered as arising from the same causes, and as symptoms only of the more general affection.

There is, indeed, one case of a morositas which seems to induce a vesania, or more general affection of the judgment; and this may lead us to consider the vesania, in this case, as a symptom of an erroneous appetite, but will not afford any good reason for comprehending the morositates in general under the vesaniæ, considered as primary diseases.

The limitation, therefore, of the class of Vesaniæ to the lesions of our judging faculty, seems from every consideration to be proper.

The particular diseases to be comprehended under this class, may be distinguished according as they affect persons in the time of waking or sleeping. Those which affect men awake, may again be considered, as they consist in an erroneous judgment, to which I shall give the appellation of *Delirium;* or as they consist in a weakness or imperfection of judgment, which I shall name *Fatuity*. I begin with the consideration of Delirium.

MDXXX. As men differ greatly in the soundness and force of their judgment, so it may be proper here to ascertain more precisely what error or imperfection of our judging faculty is to be considered as morbid, and to admit of the appellations of Delirium and Fatuity. In doing this, I shall first consider the morbid errors of judgment under the general appellation of Delirium, which has been commonly employed to denote every mode of such error.

MDXXXI. As our judgment is chiefly exercised in discerning and judging of the several relations of things, I apprehend that delirium may be defined to be,—In a person awake, a false or mistaken judgment of those relations of things, which, as occurring most frequently in life, are those about which the generality of men form the same judgment; and particularly when the judgment is very different from what the person himself had before usually formed.

" The perceptions of men are nearly similar: for this reason, there is also a similarity in the perception of relation. Simple perceptions and their relations are the materials on which the intellect is exercised. They are laid up in the mind by associations, and it is in following these associations that the mind brings back before it the relations which it is to judge of.

" But if the perception of relations is similar, so will the associations be in common with the most part of men; and as the perceptions, relations, and associations are founded on the nature of things, so the judgments of men will be similar, and in the exercise of it they will follow the same train of associations.

"Notwithstanding this similarity, there may be a great diversity in the judgments of men, from want of perceptions, from some difference in perceptions, especially complex, from a great difference in the number of relations marked, and their exactness, and lastly from the number and variety of associations; whence a different state of the mind in different individuals, or at different times.

"But at the same time, there are so many circumstances of human life in common to all men, that there must be so much similarity as to establish a *common sense*, that is, perceptions, relations, associations, and judgments, in which all agree; and when any particular man differs from all others in these respects, we say, he is not in his senses, but insane."

MDXXXII. With this mistaken judgment of relations there is frequently joined some false perception of external objects, without any evident fault in the organs of sense, and which seems therefore to depend upon an internal cause; that is, upon the imagination, arising from a condition in the brain, presenting objects which are not actually present. Such false perceptions must necessarily occasion a delirium, or an erroneous judgment, which is to be considered as the disease.

MDXXXIII. Another circumstance, commonly attending delirium, is a very unusual association of ideas. As, with respect to most of the affairs of common life, the ideas laid up in the memory are, in most men, associated in the same manner; so a very unusual association, in any individual, must prevent his forming the ordinary judgment of those relations which are the most common foundation of association in the memory: and, therefore, this unusual, and commonly hurried association of ideas, usually is, and may be considered as a part of delirium. In particular, it may be considered as a certain mark of a general morbid affection of the intellectual organs, it being an interruption or perversion of the ordinary operations of memory, the common and necessary foundation of the exercise of judgment.

MDXXXIV. A third circumstance attending delirium, is an emotion or passion, sometimes of the angry, sometimes of the timid kind; and from whatever cause in the perception or judgment, it is not proportioned to such cause, either in the manner formerly customary to the person himself, or in the manner usual with the generality of other men.

"It is true that, from various circumstances, the estimate of good and evil is very different in different men; but still, with a great degree of latitude, there is a measure or some limits established. Nothing is more common than to say, that a man under a violent passion is quite mad, and does not know what he does; but, further, though such a state of violent passion may be a temporary state of madness, yet, if it arises from present and very evident circumstances, which would excite the same passion, though not in the same degree, in another person, and when at the same time it is transitory, it is not considered as a disease; and then only when the cause of it is not evident, or when, even to an evident cause, it is greatly disproportioned, and especially, or almost only, when the immoderate passion is connected with the incoherence of perceptions, relations, associations, and judgment we have mentioned, can we consider insanity as being present."

MDXXXV. Delirium, then, may be more shortly defined, —In a person awake, a false judgment, arising from perceptions of imagination, or from false recollection, and commonly producing disproportionate emotions.

Such delirium is of two kinds; as it is combined with pyrexia and comatose affections; or, as it is entirely without any such combination. It is the latter case that we name *Insanity*; and it is this kind of delirium only that I am to treat of here.

MDXXXVI. Insanity may perhaps be properly considered as a genus comprehending many different species, each of which may deserve our attention; but, before proceeding to the consideration of particular species, I think it proper to attempt an investigation of the cause of insanity in general.

MDXXXVII. In doing this, I shall take it for granted, as demonstrated elsewhere, that although this disease seems to be chiefly, and sometimes solely, an affection of the mind; yet the connexion between the mind and body in this life is such, that these affections of the mind must be considered as depending upon a certain state of our corporeal part. See *Halleri Prim. Lin. Physiolog.* § 570.—See *Boerhaavii Inst. Med.* § 581. 696.—" (Physiology, XXXI.)"

MDXXXVIII. Admitting this proposition, I must in the next place assume another, which I likewise suppose to be demonstrated elsewhere.—" (Physiology, CXVII.)."—This is, that the part of our body more immediately connected with the mind, and therefore more especially concerned in every affection of the intellectual functions, is the common origin of the nerves; which I shall, in what follows, speak of under the appellation of the brain.

MDXXXIX. Here, however, in assuming this last proposition, a very great difficulty immediately presents itself. Although we cannot doubt that the operations of our intellect always depend upon certain motions taking place in the brain, (See Gaub. Path. Med. § 523.); yet these motions have never been the objects of our senses, nor have we been able to perceive, that any particular part of the brain has more concern in the operations of our intellect than any other. Neither have we attained any knowledge of what share the several parts of the brain have in that operation; and therefore, in this situation of our science, it must be a very difficult matter to discover those states of the brain that may give occasion to the various state of our intellectual functions.

MDXL. It may be observed, that the different state of the motion of the blood in the vessels of the brain has some share in affecting the operations of the intellect; and physicians, in seeking for the causes of the different states of our intellectual functions, have hardly looked further than into the state of the motion of the blood, or into the condition of the blood itself: but it is evident, that the operations of the intellectual functions ordinarily go on, and are often considerably varied, without our being able to perceive any difference either in the motions or in the condition of the blood.

MDXLI. Upon the other hand, it is very probable, that the state of the intellectual functions depends chiefly upon the state and condition of what is termed the Nervous Power, or, as we suppose, of a subtile very moveable fluid, included or inherent, in a manner we do not clearly understand, in every part of the medullary substance of the brain and nerves, and which in a living and healthy man is capable of being moved from every one part to every other of the nervous system.

MDXLII. With respect to this power, we have pretty clear proof that it frequently has a motion from the sentient extremities of the nerves towards the brain, and thereby produces sensation; and we have the same proof that in consequence of volition, the nervous power has a motion from the brain into the muscles or organs of motion. Accordingly, as sensation excites our intellectual operations, and volition is the effect of these, and as the connexion between sensation and volition is always by the intervention of the brain and of intellectual operations; so we can hardly doubt, that these latter depend upon certain motions, and the various modification of these motions in the brain.

MDXLIII. To ascertain the different states of these motions may be very difficult; and physicians have commonly considered it to be so very mysterious that they have generally despaired of attaining any knowledge with regard to it: but I consider such absolute despair, and the negligence it inspires, to be always very blamable; and I shall now venture to go some length in the inquiry, hoping that some steps made with tolerable firmness may enable us to go still further.

MDXLIV. To this purpose, I think it evident, that the nervous power, in the whole as well as in the several parts of the nervous system, and particularly in the brain, is at different times in different degrees of mobility and force. To these different states, I beg leave to apply the terms of *Excitement* and *Collapse*. To that state in which the mobility and force are sufficient for the exercise of the functions, or when these states are any way preternaturally increased, I give the name of *Excitement*; and to that state in which the mobility and force are not sufficient for the ordinary exercise of the functions, or when they are diminished from the state in which they had been before, I give the name of *Collapse*. I beg, however, it may be observed, that by these terms I mean to express matters of fact only; and without intending, by these terms, to explain the circumstance or condition, mechanical or physical, of the nervous power or fluid in these different states.—"(Compare Physiology, CXXXI.)"

MDXLV. That these different states of excitement and collapse take place on different occasions, must, I think, be manifest from numberless phenomena of the animal economy: but it is especially to our present purpose to observe, that the different states of excitement and collapse are in no instance more remarkable, than in the different states of waking and sleeping. In the latter, when quite complete, the motion and mobility of the nervous power, with respect to the whole of what are called the Animal Functions, entirely cease, or, as I would express it, are in a state of collapse: and are very different from the state of waking, which in healthy persons I would call a state of general and entire excitement.

MDXLVI. This difference in the states of the nervous power in sleeping and waking being admitted, I must in the next place observe, that when these states are changed from the one into the other, as commonly happens every day, the change is hardly ever made instantaneously, but almost always by degrees, and in some length of time only: and this may be observed with respect to both sense and motion. Thus, when a person is falling asleep, the sensibility is gradually diminished: so that, although some degree of sleep has come on, slight impressions will excite sensation, and bring back excitement; which the same, or even stronger impressions, will be insufficient to produce when the state of sleep has continued longer, and is, as we may say, more complete. In like manner, the power of voluntary motion is gradually diminished. In some members it fails sooner than in others; and it is some time before it becomes general and considerable over the whole.

The same gradual progress may be remarked in a person's coming out of sleep. The ears in this case are often awake before the eyes are opened or see clearly, and the senses are often awake before the power of voluntary motion is recovered; and it is curious to observe, that in some cases, sensations may be excited without producing the ordinary association of ideas. (See *Mém. de Berlin*, 1752.)

MDXLVII. From all this, I think it will clearly appear, that not only the different states of excitement and collapse can take place in different degrees, but that they can take place in different parts of the brain, or at least with respect to the different functions, in different degrees.

As I presume that almost every person has perceived the gradual approach of sleeping and waking, I likewise suppose every person has observed, that, in such intermediate state of unequal excitement, there almost always occurs more or less of delirium, or dreaming, if any body chooses to call it so. There are in this state false perceptions, false associations, false judgments, and disproportionate emotions; in short, all the circumstances by which I have above defined delirium.

This clearly shows that delirium may depend, and I shall hereafter endeavour to prove that it commonly does depend, upon some inequality in the excitement of the brain; and that both these assertions are founded on this, that, in order to the proper exercise of our intellectual functions, the excitement must be complete, and equal in every part of the brain. For though we cannot say that the vestiges of ideas are laid up in different parts of the brain, or that they are in some measure diffused over the whole, it will follow, upon either supposition, that as our reasoning or intellectual operations always require the orderly and exact recollection or memory of associated ideas; so, if any part of the brain is not excited, or not excitable, that recollection cannot properly take place, while at the same time other parts of the brain, more excited and excitable, may give false perceptions, associations, and judgments.

MDXLVIII. It will serve to illustrate this, that the collapse in sleep is more or less complete; or that the sleep, as we commonly speak, is more or less profound: and therefore, that in many cases, though sleep takes place to a considerable degree, yet certain impressions do still take effect, and excite motions, or, if you will, sensations in the brain; but which sensations, upon account of the collapsed state of so great a part of the brain, are generally of the delirious kind, or dreams, consisting of false perceptions, associations, and judgments, that would have been corrected, if the brain had been entirely excited.

Every one, I believe, has observed, that the most imperfect sleeps are those chiefly attended with dreaming; that dreams, therefore, most commonly occur towards morning, when the complete state of sleep is passing away; and further, that dreams are most commonly excited by strong and uneasy impressions made upon the body.

I apprehend it may also be an illustration of the same thing, that, even in waking hours, we have an instance of an unequal state of excitement in the brain producing delirium. Such, I think, occurs in the case of fever. In this, it is manifest, that the energy of the brain, or its excitement, is considerably diminished with respect to the animal functions; and it is accordingly upon this ground that I have explained above, in XLV., the delirium which so commonly attends fever. To what I have there said, I shall here only add, that it may serve to confirm my doctrine, that the delirium in fever comes on at a certain period of the disease only, and that we can commonly discern its approach by a more than usual degree of it appearing in the time of the patient's falling into or coming out of sleep. It appears, therefore, that delirium, when it first comes on in fever, depends upon an inequality of excitement; and it can hardly be doubted, that the delirium which comes at length to prevail in the entirely weakened state of fevers, depends upon the same cause prevailing in a more considerable degree.

MDXLIX. From what has been now delivered, I hope it will be sufficiently evident, that delirium may be, and frequently is, occasioned by an inequality in the excitement of the brain.

How the different portions of the brain may at the same time be excited or collapsed in different degrees, or how the energy of the brain may be in different degrees of force with respect to the several animal, vital, and natural functions, I cannot pretend to explain; but it is sufficiently evident in fact, that the brain may be at one and the same time in different conditions with respect to these functions. Thus, in inflammatory diseases, when, by a stimulus applied to the brain, the force of the vital functions is preternaturally increased, that of the animal is either little changed, or considerably diminished. On the contrary, in many cases of mania, the force of the animal functions depending always on the brain, is prodigiously increased, while the state of the vital function in the heart is very little or not at all changed. I must therefore say again, that how difficult soever it may be to explain the mechanical or physical condition of the brain in such cases, the facts are sufficient to show that there is such an inequality as may disturb our intellectual operations.

MDL. I have thus endeavoured to explain the general cause of Delirium: which is of two kinds; according as it is with or without pyrexia. Of the first I take no further notice here, having explained it as well as I could above, in XLV.

I proceed now to consider that delirium which properly belongs to the class of Vesaniæ, and which I shall treat of under the general title of *Insanity*.

"I am still doubtful whether I am sufficiently exact in my definition of Insania (See *Synopsis Nosol.* Note to gen. XLV.). I have had too strictly in view the *Error mentis judicantis.* Gaubius is more complete in his definition of delirium, as affecting all the faculties of the mind, perception, judgment, and will (Patholog. § 732.). I omitted false perception and erroneous will, because I had excluded both the Hallucinationes and Morositates from the order of Vesaniæ. But I had excluded them in so far as they depend on a fault or disease of the external organs; and I now perceive, that I should have retained them more distinctly in so far as they depend on the brain itself. I truly do this, but not explicitly enough; and, taking Gaubius' definition of delirium, I might have defined Insania, as applicable to our present case, *delirium sine febre.*"

MDLI. In entering upon this subject, it immediately occurs, that in many instances of insanity, we find, upon dissection after death, that peculiar circumstances had taken place in the general condition of the brain. In many cases, it has been found of a drier, harder, and firmer consistence, than what it is usually of in persons who had not been affected with that disease. In other cases, it has been found in a more humid, soft, and flaccid state; and in the observations of the late Mr. Meckel,* it has been found considerably changed in its density or specific gravity. Whether these different states have been observed to be uniformly the same over the whole of the brain, I cannot certainly learn; and I suspect the dissectors have not always accurately inquired into this circumstance; but, in several instances, it appears that these states had been different in different parts of the brain; and instances of this inequality will afford a confirmation of our general doctrine.

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* Mémoires de Berlin pour l'année 1764. It appeared in many instances of insane persons, that the medullary substance of the cerebrum was drier, and of a less specific gravity, than in persons who had been always of a sound judgment.

The accurate Morgagni has observed, that in maniacal persons the medullary portion of the brain is unusually dry, hard, and firm: And this he had so frequently observed, that he was disposed to consider it as generally the case. But in most of the particular instances which he has given, it appears, that, for the most part, while the cerebrum was of an unusually hard and firm consistence, the cerebellum was of its usual softness; and in many of the cases it was unusually soft and flaccid. In some other cases, Morgagni observes, that while a part of the cerebrum was harder and firmer than ordinary, other parts of it were preternaturally soft.

MDLII. These observations tend to confirm our general doctrine; and there are others which I think will apply to the same purpose.

Upon the dissection of the bodies of persons who had laboured under insanity, various organic affections have been discovered in particular parts of the brain; and it is sufficiently probable, that such organic affections might have produced a different degree of excitement in the free and affected parts, and must have interrupted in some measure the free communication between the several parts of the brain, and in either way have occasioned insanity.

There have occurred so many instances of this kind, that I believe physicians are generally disposed to suspect organic lesions of the brain to exist in almost every case of insanity.

MDLIII. This, however, is probably a mistake; for we know that there have been many instances of insanity from which the persons have entirely recovered; and it is difficult to suppose that any organic lesions of the brain had in such case taken place. Such transitory cases, indeed, render it probable, that a state of excitement, changeable by various causes, had been the cause of such instances of insanity.

MDLIV. It is indeed further asserted, that in many instances of insane persons, their brain had been examined after death without showing that any organic lesions had before subsisted in the brain, or finding that any morbid state of the brain then appeared. This, no doubt, may serve to show, that organic lesions had not been the cause of the disease; but it does not assure us that no morbid change had taken place in the brain: for it is probable, that the dissectors were not always aware of its being the general condition of hardness and density, as different in different parts of the brain, that was to be attended to, in order to discover the cause of the preceding disease; and therefore many of them had not with this view examined the state of the brain, as Morgagni seems carefully to have done.

MDLV. Having thus endeavoured to investigate the cause of insanity in general, it were to be wished that I could apply the doctrine to the distinguishing the several species of it, according as they depend upon the different state and circumstances of the brain, and thereby to the establishing of a scientific and accurately adapted method of cure. These purposes, however, appear to me to be extremely difficult to be attained; and I cannot hope to execute them here. All I can do is to make some attempts, and offer some reflections, which further observation, and greater sagacity, may hereafter render more useful.

MDLVI. The ingenious Dr. Arnold has been commendably employed in distinguishing the different species of insanity as they appear with respect to the mind; and his labours may hereafter prove useful, when we shall come to know something more of the different states of the brain corresponding to these different states of the mind; but at present I can make little application of his numerous distinctions. It appears to me that he has chiefly pointed out and enumerated distinctions that are merely varieties, which can lead to little or no variety of practice: and I am especially led to form the latter conclusion, because these varieties appear to me to be often combined together, and to be often changed into one another, in the same person; in whom we must therefore suppose a general cause of the disease, which, so far as it can be known, must establish the pathology, and especially direct the practice.

MDLVII. In my limited views of the different states of insanity, I must go on to consider them under the two heads of Mania and Melancholia: and though I am sensible that these two genera do not comprehend the whole of the species of insanity, I am not clear in assigning the other species which may not be comprehended under those titles. I shall, however, endeavour, on proper occasions as I go along, to point them out as well as I can.

CHAP. II.—OF MANIA, OR MADNESS.

MDLVIII. The circumstances which I have mentioned above in MDXXXV., as constituting delirium in general, do more especially belong to that kind of it which I shall treat of here under the title of MANIA.

There is sometimes a false perception or imagination of things present that are not; but this is not a constant, nor even a frequent attendant of the disease. The false judgment is of relations long before laid up in the memory. It very often turns upon one single subject: but more commonly the mind rambles from one subject to another with an equally false judgment concerning the most part of them; and as at the same time there is commonly a false association, this increases the confusion of ideas, and therefore the false judgments. What for the most part more especially distinguishes the disease, is a hurry of mind, in pursuing any thing like a train of thought, and in running from one train of thought to another. Maniacal persons are in general very irascible; but what more particularly produces their angry emotions is, that their false judgments lead to some action which is always pushed with impetuosity and violence; when this is interrupted or restrained, they break out into violent anger and furious violence against every person near them, and upon every thing that stands in the way of their impetuous will. The false judgment often turns upon a mistaken opinion of some injury supposed to have been formerly received, or now supposed to be intended: and it is remarkable, that such an opinion is often with respect to their former dearest friends and relations; and therefore their resentment and anger are particularly directed towards these. And although this should not be the case, they commonly soon lose that respect and regard which they formerly had for their friends and relations. With all these circumstances, it will be readily perceived, that the disease must be attended very constantly with that incoherent and absurd speech we call raving. Further, with the circumstances mentioned, there is commonly joined an unusual force in all the voluntary motions; and an insensibility or resistance of the force of all impressions, and particularly a resistance of the powers of sleep, of cold, and even of hunger; though indeed in many instances a voracious appetite takes place.

MDLIX. It appears to me, that the whole of these circumstances and symptoms point out a considerable and unusual excess in the excitement of the brain, especially with respect to the animal functions; and it appears at the same time to be manifestly in some measure unequal, as it very often takes place with respect to these functions alone, while at the same time the vital and natural are commonly very little changed from their ordinary healthy state.

MDLX. How this excess of excitement is produced, it may be difficult to explain. In the various instances of what Sauvages has named the Mania *metastatica*, and in all the instances I have mentioned in my Nosology under the title of the Mania *corporea*, it may be supposed, that a morbid organic affection is produced in some part of the brain; and how that may produce an increased or unequal excitement in certain parts of it, I have endeavoured to explain above in MDLII. But I must at the same time acknowledge, that such remote causes of mania have very rarely occurred; and that, therefore, some other causes of the disease must be sought for.

The effects of violent emotions or passions of the mind have more frequently occurred as the remote causes of mania; and it is sufficiently probable, that such violent emotions, as they do often immediately produce a temporary increase of excitement, so they may, upon some occasions of their permanent inherence or frequent repetition, produce a more considerable and more permanent excitement, that is, a mania.

With respect to those causes of mania which arise in consequence of a melancholia which had previously long subsisted; whether we consider that melancholia as a partial insanity, or as a long persisting attachment to one train of thinking, it will be readily perceived, that in either case such an increase of excitement may take place in so considerable a degree, and in so large a portion of the brain, as may give occasion to a complete mania.

MDLXI. These considerations with regard to the remote causes appear to me to confirm sufficiently our general doctrine of increased and unequal excitement in the mania, which I have described above; but I must own, that I have not exhausted the subject, and that there are cases of mania of which I cannot assign the remote causes: but although I cannot in all cases explain in what manner the mania is produced, I presume, from the explanation given, and especially from the symptoms enumerated above, to conclude, that the disease described above depends upon an increased excitement of the brain; an opinion in which I am the more confirmed, as I think it will point out the proper method of cure. At least I think it will most clearly explain the operation of those remedies, which, so far as I can learn from my own experience, and that of others, have proved the most successful in this disease; and to illustrate this, I now enter upon the consideration of these remedies; and to make some remarks upon the proper manner of employing them.

MDLXII. Restraining the anger and violence of madmen is always necessary for preventing their hurting themselves or others: but this restraint is also to be considered as a remedy. Angry passions are always rendered more violent by the indulgence of the impetuous motions they produce; and even in madmen, the feeling of restraint will sometimes prevent the efforts which their passion would otherwise occasion. Restraint, therefore, is useful, and ought to be complete; but it should be executed in the easiest manner possible for the patient, and the strait waistcoat answers every purpose better than any other that has yet been thought of. The restraining madmen by the force of other men, as occasioning a constant struggle and violent agitation, is often hurtful. Although, on many occasions, it may not be safe to allow maniacs to be upon their legs, or to walk about, it is never desirable to confine them to a horizontal situation; and whenever it can be admitted, they should be more or less in an erect posture. Although there may be no symptoms of any preternatural fulness or increased impetus of blood in the vessels of the brain, a horizontal posture always increases the fulness and tension of these vessels, and may thereby increase the excitement of the brain.

MDLXIII. The restraint mentioned requires confinement within doors, and it should be in a place which presents as few objects of sight and hearing as possible; and, particularly, it should be removed from the objects that the patient was formerly acquainted with, as these would more readily call up ideas and their various associations. It is for this reason, that the confinement of madmen should hardly ever be in their usual habitation; or, if they are, that their apartment should be stripped of all its former furniture. It is also for the most part proper, that maniacs should be without the company of any of their former acquaintance; the appearance of whom commonly excites emotions that increase the disease. Strangers may at first be offensive; but in a little time they come to be objects either of indifference or of fear, and they should not be frequently changed.

MDLXIV. Fear being a passion that diminishes excitement, may therefore be opposed to the excess of it; and particularly to the angry and irascible excitement of maniacs. These being more susceptible of fear than might be expected, it appears to me to have been commonly useful. In most cases it has appeared to be necessary to employ a very constant impression of fear; and therefore to inspire them with the awe and dread of some particular persons, especially of those who are to be constantly near them. This awe and dread is, therefore, by one means or other, to be acquired; in the first place, by their being the authors of all the restraints that may be occasionally proper; but sometimes it may be necessary to acquire it even by stripes and blows. The former, although having the appearance of more severity, are much safer than strokes or blows about the head. Neither of them, however, should be employed further than seems very necessary, and should be trusted only to those whose discretion can be depended upon.

There is one case in which they are superfluous; that is, when the maniacal rage is either not susceptible of fear, or incapable of remembering the objects of it; for in such instances, stripes and blows would be wanton barbarity. In many cases of a moderate disease, it is of advantage that the persons who are the authors of restraints and punishment, should be upon other occasions the bestowers of every indulgence and gratification that is admissible; never, however, neglecting to employ their awe when their indulgence shall have led to any abuse.

MDLXV. Although in mania no particular irritation nor fulness of the system seems to be present, it is plain that the avoiding all irritation and means of fulness is proper; and, therefore, that a diet neither stimulating nor nourishing is commonly to be employed. As it may even be useful to diminish the fulness of the system, so both a low and a spare diet is likely in most cases to be of service.

MDLXVI. Upon the same principle, although no unusual fulness of the body be present, it may be of advantage to diminish even its ordinary fulness by different evacuations.

Blood-letting, in particular, might be supposed useful; and in all recent cases of mania it has been commonly practised, and I think with advantage; but when the disease has subsisted for some time, I have seldom found blood-letting of service. In those instances in which there is any frequency or fulness of pulse, or any marks of an increased impetus of the blood in the vessels of the head, blood-letting is a proper and even a necessary remedy. Some practitioners, in such cases, have preferred a particular manner of blood-letting, recommending arteriotomy, scarifying the hind-head, or opening the jugular vein; and where any fulness or inflammatory disposition in the vessels of the brain is to be suspected, the opening of the vessels nearest to them is likely to be of the greatest service. The opening, however, of either the temporal artery or the jugular vein in maniacal persons is very often inconvenient; and it may generally be sufficient to open a vein in the arm, while the body is kept in somewhat of an erect posture, and such a quantity of blood drawn as nearly brings on a deliquium animi, which is always a pretty certain mark of some diminution of the fulness and tension of the vessels of the brain.

MDLXVII. For the same purpose of taking off the fulness and tension of these vessels of the brain, purging may be employed; and I can in no other view understand the celebrated use of hellebore among the ancients. I cannot, however, suppose any specific power in hellebore; and can by no means find, that at least the black hellebore, is so efficacious with us as it is said to have been at Anticyra. As costiveness, however, is commonly a very constant and hurtful attendant of mania, purgatives come to be sometimes very necessary: and I have known some benefit obtained from the frequent use of pretty drastic purgatives. In this, however, I have been frequently disappointed; and I have found more advantage from the frequent use of cooling purgatives, particularly the soluble tartar, than from more drastic medicines.

MDLXVIII. Vomiting has also been frequently employed in mania; and by determining powerfully to the surface of the body, it may possibly diminish the fulness and tension of the vessels, and thereby the excitement of the brain; but I have never carried the use of this remedy so far as might enable me to judge properly of its effects. Whether it may do harm, by impelling the blood too forcibly into the vessels of the brain, or whether, by its general agitation of the whole system, it may remove that inequality of excitement which prevails in mania, I have not had experience enough to determine.

MDLXIX. Frequent shaving of the head has been found of service in mania; and by promoting perspiration, it probably takes off from the excitement of the internal parts. This, however, it is likely, may be more effectually done by blistering, which more certainly takes off the excitement of subjacent parts. In recent cases it has been found useful by inducing sleep; and when it has that effect, the repetition of it may be proper: but in maniacal cases that have lasted for some time, blistering has not appeared to me to be of any service; and in such cases also I have not found perpetual blisters, or any other form of issue, prove useful.

MDLXX. As heat is the principal means of first exciting the nervous system, and establishing the nervous power and vital principle in animals, so, in cases of preternatural excitement, the application of cold might be supposed a proper remedy; but there are many instances of maniacs who have been exposed for a great length of time to a considerable degree of cold, without having their symptoms anywise relieved. This may render, in general, the application of cold a doubtful remedy: but it is at the same time certain, that maniacs have often been relieved, and sometimes entirely cured, by the use of cold-bathing, especially when administered in a certain manner. This seems to consist in throwing the madman into the cold water by surprise; by detaining him in it for some length of time; and pouring water frequently upon the head, while the whole of the body, except the head, is immersed in the water; and thus managing the whole process, so as that, with the assistance of some fear, a refrigerant effect may be produced. This, I can affirm, has been often useful; and that the external application of cold may be of service, we know further from the benefit which has been received in some maniacal cases from the application of ice and snow to the naked head, and from the application of the noted clay cap.

Warm-bathing also has been recommended by some practical writers; and in some rigid melancholic habits it may possibly be useful, or as employed in the manner prescribed by some, of immersing the lower parts of the body in warm water, while cold water is poured upon the head and upper parts. Of this practice, however, I have had no experience; and in the common manner of employing warm-bathing, I have found it rather hurtful to maniacs.

MDLXXI. According to my supposition, that the disease depends upon an increased excitement of the brain, especially with respect to the animal functions, opium, so commonly powerful in inducing sleep, or a considerable collapse as to these functions, should be a powerful remedy of mania. That it has truly proved such, I believe from the testimony of Bernard Huet, whose practice is narrated at the end of Wepferi Historia Apoplecticorum. I leave to my readers to study this in the work I have referred to, where every part of the practice is fully, and, as it appears to me, very judiciously delivered. I have never, indeed, carried the trial so far as seems to be requisite to an entire cure; but I have frequently employed, in some maniacal cases, large doses of opium; and when they had the effect of inducing sleep, it was manifestly with advantage. At the same time, in some cases, from doubts whether the disease might not depend upon some organic lesions of the brain, when the opium would be superfluous; and in other cases, from doubts whether there might not be some inflammatory affection joined with the mania, when the opium would be hurtful; I have never pushed this remedy to the extent that might be necessary to make an entire cure.—" I have gone the length of giving five grains of opium in persons hardly accustomed to the remedy, and in several cases with good effects."

MDLXXII. Camphire has been recommended as a remedy of mania, and there are instances alleged of its having performed an entire cure. As it appears from the experiments of Beccaria, that this substance is possessed of a sedative and narcotic virtue, these cures are not altogether improbable; but in several trials, and even in large doses, I have found no benefit from it; and excepting those in the Philosophical Transactions, No. 400., I have hardly met with any other testimonies in its favour.

MDLXXIII. I have been informed that some maniacs have been cured by being compelled to constant and even hard labour; and, as a forced attention to the conduct of any bodily exercise is a very certain means of diverting the mind from pursuing any train of thought, it is highly probable that such exercise may be useful in many cases of mania.

I must conclude this subject with observing, that even in several cases of complete mania, I have known a cure take place in the course of a journey carried on for some length of time.

MDLXXIV. These are the remedies which have been chiefly employed in the mania that has been above described; and I believe they have been employed promiscuously, without supposing that the mania was to be distinguished into different species. Indeed, I am not ready to say how far it is to be so distinguished; but I shall offer one observation which may possibly merit attention.

It appears to me, that there are two different cases of mania that are especially different, according to the original temperament of the persons whom the disease affects. It perhaps occurs most frequently in persons of a melancholic or atrabilarian temperament; but it certainly does also often occur in persons of that very opposite temperament which physicians have named the Sanguine. According as the disease happens to occur in persons of the one or other of these temperaments, I apprehend it may be considered as of a different nature; and I believe, that accurate observation, employed upon a sufficient number of cases, would discern some pretty constant difference, either of the symptoms, or at least of the state of symptoms, in the two cases. I imagine that false imaginations, particular aversions and resentments, are more fixed and steady in the melancholic than in the sanguine; and that somewhat inflammatory is more commonly joined with mania in the sanguine than in the melancholic. If such difference, however, does truly take place, it will be obvious, that it may be proper to make some difference also in the practice. I am of opinion, that in the mania of sanguine persons, blood-letting and other antiphlogistic measures are more proper, and have been more useful than in the melancholic. I likewise apprehend that cold bathing is more useful in the sanguine than in the melancholic: but I have not had experience enough to ascertain these points with sufficient confidence.

I have only to add this other observation, that maniacs of the sanguine temperament recover more frequently and more entirely than those of the melancholic.

CHAP. III.—OF MELANCHOLY, AND OTHER FORMS OF INSANITY.

MDLXXV. Melancholy has been commonly considered as a partial insanity; and as such it is defined in my Nosology: but I now entertain doubts if this be altogether proper. By a partial insanity, I understand a false and mistaken judgment upon one particular subject, and what relates to it; whilst, on every other subject, the person affected judges as the generality of other men do. Such cases have certainly occurred; but, I believe, few in which the partial insanity is strictly limited. In many cases of general insanity, there is one subject of anger or fear, upon which the false judgment more particularly turns, or which is at least more frequently than any other the prevailing object of delirium: and though, from the inconsistency which this principal object of delirium must produce, there is, therefore, also a great deal of insanity with regard to most other objects; yet this last is in very different degrees, both in different persons, and in the same person at different times. Thus, persons considered as generally insane, will, however, at times, and in some cases, pretty constantly judge properly enough of present circumstances and incidental occurrences; though, when these objects engaging attention are not presented, the operations of imagination may readily bring back a general confusion, or recall the particular object of the delirium. From these considerations, I am inclined to conclude, that the limits between general and partial insanity cannot always be so exactly assigned, as to determine when the partial affection is to be considered as giving a peculiar species of disease, different from a more general insanity.

MDLXXVI. When insanity, neither strictly partial, nor entirely nor constantly general, occurs in persons of a sanguine temperament, and is attended with agreeable, rather than with angry or gloomy emotions, I think such a disease must be considered as different from the Mania described above; and also, though partial, must be held as different from the proper Melancholia to be mentioned hereafter.

MDLXXVII. Such a disease, as different from those described MDLIV., requires, in my opinion, a different administration of remedies; and it will be proper for me to take particular notice of this here.

Although it may be necessary to restrain such insane persons as we have mentioned MDLXXVI. from pursuing the objects of their false imagination or judgment, it will hardly be requisite to employ the same force of restraint that is necessary in the impetuous and angry mania. It will be generally sufficient to acquire some awe over them, that may be employed, and sometimes even be necessary, to check the rambling of their imagination, and incoherency of judgment.

MDLXXVIII. The restraint just now mentioned as necessary, will generally require the patients' being confined to one place, for the sake of excluding the objects, and more particularly the persons, that might excite ideas connected with the chief objects of their delirium. At the same time, however, if it can be perceived there are objects or persons that can call off their attention from the pursuit of their own disordered imagination, and can fix it a little upon some others, these last may be frequently presented to them; and for this reason, a journey, both by its having the effect of interrupting all train of thought, and by presenting objects engaging attention, may often be useful. In such cases also, when the insanity, though more especially fixed upon one mistaken subject, is not confined to this alone, but is further apt to ramble over other subjects with incoherent ideas, I apprehend the confining or forcing such persons to some constant uniform labour, may prove an useful remedy.

MDLXXIX. When such cases as in MDLXVI. occur in sanguine temperaments, and may therefore approach more nearly to Phrenitic Delirium ; so, in proportion as the symptoms of this tendency are more evident and considerable, blood-letting and purging will be the more proper and necessary.

MDLXXX. To this species of insanity, when occurring in sanguine temperaments, whether it be more or less partial, I apprehend that cold bathing is particularly adapted, while in the partial insanity of melancholic persons, as I shall show hereafter, it is hardly admissible.

MDLXXXI. Having thus treated of a species of insanity, different, in my apprehension, from both the Mania and Melancholia, I proceed to consider what seems more properly to belong to this last.

MDLXXXII. The disease which I name Melancholia, is very often a partial insanity only. But as, in many instances, though the false imagination or judgment seems to be with respect to one subject only, yet it seldom happens that this does not produce much inconsistency in the other intellectual operations. And as, between a very general and a very partial insanity, there are all the possible intermediate degrees ; so it will be often difficult, or perhaps improper, to distinguish Melancholia by the character of Partial Insanity alone. If I mistake not, it must be chiefly distinguished by its occurring in persons of a melanhcolic temperament, and by its being always attended with some seemingly groundless but very anxious fear.

MDLXXXIII. To explain the cause of this, I must observe, that persons of a melancholic temperament are, for the most part, of a serious, thoughtful disposition, and disposed to fear and caution, rather than to hope and temerity. Persons of this cast are less moveable than others by any impressions; and are therefore capable of a closer or more continued attention to one particular object or train of thinking. They are even ready to be engaged in a constant application to one subject; and are remarkably tenacious of whatever emotions they happen to be affected with.

MDLXXXIV. These circumstances of the melancholic character, seem clearly to show, that persons strongly affected with it, may be readily seized with an anxious fear; and that this, when much indulged, as is natural to such persons, may easily grow into a partial insanity.

MDLXXXV. Fear and dejection of mind, or a timid and desponding disposition, may arise in certain states, or upon certain occasions, of mere debility; and it is upon this footing that I suppose it sometimes to attend dyspepsia. But in these cases, I believe the despondent disposition hardly ever arises to a considerable degree, or proves so obstinately fixed as when it occurs in persons of a melancholic temperament. In these last, although the fear proceeds from the same dyspeptic feelings as in the other case, yet it will be obvious, that the emotion may rise to a more considerable degree; that it may be more anxious, more fixed, and more attentive; and therefore may exhibit all the various circumstances which I have mentioned in MCCXXII., to take place in the disease named HYPOCHONDRIASIS.

MDLXXXVI. In considering this subject formerly, in distinguishing Dyspepsia from Hypochondriasis, although the symptoms affecting the body be very much the same in both, and even those affecting the mind be somewhat similar, I found no difficulty in distinguishing the latter disease, merely from its occurring in persons of a melancholic temperament. But I must now acknowledge, that I am at a loss to determine, how in all cases hypochondriasis and melancholia may be distinguished from one another, whilst the same temperament is common to both.

MDLXXXVII. I apprehend, however, that the distinction may be generally ascertained in the following manner:

The hypochondriasis I would consider as being always attended with dyspeptic symptoms; and though there may be, at the same time, an anxious melancholic fear arising from the feeling of these symptoms; yet while this fear is only a mistaken judgment with respect to the state of the person's own health, and to the danger to be from thence apprehended, I would still consider the disease as a hypochondriasis, and as distinct from the proper melancholia. But when an anxious fear and despondency arises from a mistaken judgment with respect to other circumstances than those of health, and more especially when the person is, at the same time, without any dyspeptic symptoms, every one will readily allow this to be a disease widely different from both dyspepsia and hypochondriasis; and it is what I would strictly name Melancholia.

MDLXXXVIII. In this there seems little difficulty: but as an exquisitely melancholic temperament may induce a torpor and slowness in the action of the stomach, so it generally produces some dyspeptic symptoms; and from thence there may be some difficulty in distinguishing such a case from hypochondriasis. But I would maintain, however, that when the characters of the temperament are strongly marked; and more particularly when the false imagination turns upon other subjects than that of health, or when, though relative to the person's own body, it is of a groundless and absurd kind; then, notwithstanding the appearance of some dyspeptic symptoms, the case is still to be considered as that of a melancholia rather than a hypochondriasis.

MDLXXXIX. The disease of melancholia, therefore, manifestly depends upon the general temperament of the body: and although, in many persons, this temperament is not attended with any morbid affection either of mind or body; yet when it becomes exquisitely formed, and is in a high degree, it may become a disease affecting both, and particularly the mind. It will therefore be proper to consider in what this melancholic temperament especially consists; and to this purpose, it may be observed, that in it there is a degree of torpor in the motion of the nervous power, both with respect to sensation and volition; that there is a general rigidity of the simple solids; and that the balance of the sanguiferous system is upon the side of the veins. But all these circumstances are the directly opposite of those of the sanguine temperament; and must therefore also produce an opposite state of mind.

MDXC. It is this state of the mind, and the state of the brain corresponding to it, that is the chief object of our present consideration. But what that state of the brain is, will be supposed to be difficult to explain; and it may perhaps seem rash in me to attempt it.

I will, however, venture to say, that it is probable the melancholic temperament of mind depends upon a drier and firmer texture in the medullary substance of the brain; and that this, perhaps, proceeds from a certain want of fluid in that substance, which appears from its being of a lesser specific gravity than usual. That this state of the brain in melancholia does actually exist, I conclude, *first*, from the general rigidity of the whole habit; and, *secondly*, from dissections, showing such a state of the brain to have taken place in mania, which is often no other than a higher degree of melancholia. It does not appear to me anywise difficult to suppose, that the same state of the brain may in a moderate degree give melancholia, and in a higher, that mania which melancholia so often passes into; especially, if I shall be allowed further to suppose, that either a greater degree of firmness in the substance of the brain may render it susceptible of a higher degree of excitement, or that one portion of the brain may be liable to acquire a greater firmness than others, and consequently give occasion to that inequality of excitement upon which mania so much depends.

MDXCI. I have thus endeavoured to deliver what appears to me most probable with respect to the proximate cause of melancholia; and although the matter should in some respects remain doubtful, I am well persuaded that these observations may often be employed to direct our practice in this disease, as I shall now endeavour to show.

MDXCII. In most of the instances of melancholia, the mind is to be managed very much in the same manner as I have advised above with regard to hypochondriasis; but as in the case of proper melancholia there is commonly a false imagination or judgment appearing as a partial insanity, it may be further necessary in such cases to employ some artifices for correcting such imagination or judgment.

MDXCIII. The various remedies for relieving the dyspeptic symptoms which always attend hypochondriasis, will seldom be either requisite or proper in melancholia.

There is only one of the dyspeptic symptoms, which, though there should be no other, is very constantly present in melancholia, and that is costiveness. This it is always proper and even necessary to remove; and I believe it is upon this account that the use of purgatives has been found so often useful in melancholia. Whether there be any purgatives peculiarly proper in this case, I dare not positively determine; but with respect to the choice of purgatives in melancholia, I am of the same opinion that I delivered above on this same subject with respect to mania.

MDXCIV. With respect to other remedies, I judge that blood-letting will more seldom be proper in melancholia than in mania; but how far it may be in any case proper, must be determined by the same considerations as in the case of mania.

MDXCV. The cold bathing that I judged to be so very useful in several cases of insanity, is, I believe, in melancholia, hardly ever fit to be admitted, at least while this is purely a partial affection, and without any marks of violent excitement. On the contrary, upon account of the general rigidity prevailing in melancholia, it is probable that warm bathing may be often useful.

MDXCVI. With respect to opiates, which I have supposed might often be useful in cases of mania, I believe they can seldom be properly employed in the partial insanities of the melancholic, except in certain instances of violent excitement, when the melancholia approaches nearly to the state of mania.

MDXCVII. In such cases of melancholia approaching to a state of mania, a low diet may sometimes be necessary; but as the employing a low diet almost unavoidably leads to the use of vegetable food, and as this in every torpid state of the stomach is ready to produce some dyspeptic symptoms, such vegetable food ought, in moderate cases of melancholia, to be used with some caution.

Though exercise, as a tonic power, is not proper either in hypochondriasis or melancholia, yet with respect to its effects upon the mind, it may be extremely useful in both; and in melancholia it is to be employed in the same manner that I have advised above in the case of hypochondriasis.

MDXCVIII. Having now delivered my doctrine with respect to the chief forms of insanity, I should in the next place proceed to consider the other genera of Amentia and Oneirodynia, which, in the Nosology, I have arranged under the order of Vesaniæ: but as I cannot pretend to throw much light upon these subjects, and as they are seldom the objects of practice, I think it allowable for me to pass them over at present; and the particular circumstances of this work in some measure require that I should do so.

"Many may think the genus Oneirodynia altogether unnecessary, as being no disease, and indeed it is seldom the object of practice. This is true, but still it is a disease, and the second species of it, the *O. gravans*, *Ephialtes*, or Nightmare, has been sometimes an object of practice.

"I think every instance of dreaming a disease, as perfect sleep suspends every part of mental operations, and in most instances dreams manifestly depend upon some fault in the system, or some stimulus externally applied. This must also account for dreaming being generally delirious, and therefore depending on inequality of excitement. There may be exceptions alleged of coherent dreams; but even these, as always partial, shew the same inequality. This subject of dreaming might be pursued as a theory with some curiosity, but with a view to practice we have nothing to say respecting it; it is to be prevented rather than cured, and the several causes that have a tendency to produce it are therefore to be avoided.

"The Nightmare has been more commonly considered as a disease requiring treatment, and justly so, as it is often a prelude to the Comata, and occurs especially in persons disposed to these.

"The theory of this is not quite agreed upon; for, while some consider it as an affection of respiration, others believe it to be one of the head.

" I try to reconcile them in this manner. Comatous affections, if very entire, affect respiration, and give *stertor* as a mark of it. If, therefore, a congestion of the head is not considerable enough to overcome all sense, it may be so much as to affect the breathing, to prevent the easy and full dilatation of the thorax; and the sense of that is imputed to what otherwise prevents the dilatation, a weight somewhat pressing the thorax. Whatever difficulty there may be in this, it is pretty certain that *ephialtes* depends upon congestion. It occurs in most cases from a supine posture, which prevents the blood from passing into the jugular veins: and if this is not always the case, something analogous may be presumed in other instances. Hence the cure."

ON HEADACH.

(From the Clinical Lectures.)

" Headach, as a disease, is obscure; as a symptom, difficult. It may be allowed to be generally symptomatic; but I presume it may also be primary; and much confusion has arisen in the attempts to distinguish between them. Sauvages has treated the subject in every respect improperly. He has enumerated as species of Headach what are evidently only symptoms of other diseases, or affections not peculiar to the head. From the species of primary headach, are to be rejected,

" 1. All those pains depending on topical affections of the external parts, which may occur in other parts of the body, and the seat of which in the head changes neither their nature nor their indications. Thus, the Cephalæa syphilitica is not a disease different from a pain of the shins from the same cause. Upon the same grounds I reject the Cephalæa ab acrimonia, the Hemicrania ocularis, odontalgica, sinus, purulenta, ab insectis.

" 2. All those that are manifestly symptomatic, as the Cephalalgia catamenialis, hæmorrhoidalis, stomachica, febrilis, pulsatilis, intermittens, gravidarum, inflammatoria, catarrhalis, Cephalæa arthritica, febricosa, Polonica; Hæmicrania coryzæ, hæmorrhoidalis, nephralgica; and I think, on the same ground, the Cephalalgia hysterica, Cephalæa melancholica, Hemicrania clavus, and lunatica.

"3. The Cephalalgia anemotropa, as taken from a cause that does not vary the disease,

"The whole species of Sauvages are thus rejected, except three, Cephalalgia plethorica (sp. 1.), Cephalæa serosa (sp 7.), and Cephalalgia metallica (sp. 13.), which I am disposed to reject altogether.

"Besides these, the rest are all symptomatic, but there are idiopathic species not at all mentioned by Sauvages. We have endeavoured to shew that the principal species of idiopathic headach may be considered as a topical fever.

"We are now to treat of headach as a symptom only, this being necessary previous to any consideration of it as a disease. But the subject is difficult, and I think it proper to state the difficulties.

"The *first* arises from the theory of pain in general. Many causes of pain manifestly have a tendency to destroy the continuity of the nervous substance, as violent distention, tight ligatures, and cutting instruments. Chemical impression is often of the same kind, as for example, that of the most powerful solvents. This has produced a notion, that pain always depends on an impulse approaching to a solution of continuity. But Dr. Haller and others have observed, that this is not universally the case; and it is obvious that impulses, far short of this, produce pain; and this occurs where an increase of impulse produces a strong sensation of impression. We are still therefore to seek for an increase of impulse or motion in the part in every case of pain.

"In all cases of pain arising from an external cause we are at no loss to find the increase of motion, but in those in which the cause is internal, it is not always obvious. In these we, in the first place, suspect the distention of vessels produced by an increased impetus of the fluids, an inflammatory congestion; and this is a frequent cause of pain, both by itself and in combination with other causes; it frequently exists where it is little observed, as it is often topical.

" Where we cannot observe a distention of vessels, we next suspect a chemical impression of acrimony, and this also undoubtedly takes place in some cases; but the evidence is not always clear; and we have often concluded its existence merely from the presence of pain. Indeed, since the chemical pathology was received, this has been the most common supposition, and acrimony has been suspected everywhere, even in the nervous fluid itself. But without discussing that, we can say it is doubtful, so long as other causes can be assigned with equal probability.

" One such is *inflammatory congestion*, another is *spasm.* The latter is a well known affection of muscles producing pain, but we have no clear notion of the nature of the affection. We know in general that it is an affection of muscular fibres independent of any change in the motion or quality of the fluids, and hence consider it as a distinct head from the other two; but we are uncertain what internal parts it affects, and whether it affects the blood-vessels; and, therefore, when pain appears in membranes not provided with other muscular fibres than those of the vessels, it is a question whether the pain is inflammatory, chemical, or spasmodic—or if there are still other kinds of pain.

" We believe that there are, arising particularly from an increase of motion in the nerves of sensation only.

" We think we have an example of this in the pain of the teeth produced by sounds; in the glottis from stimulus of the ear; in the glans penis from the neck of the bladder; in rheumatism; in the toothach, and probably in the headach. With regard to all these instances there may be a doubt about the manner of communication; but such a doubt does not prevent the conclusion, that in them the pain arises from motions in the nerves of sensation.

" There may be a question too, why the pain does not appear in the place of the impression, rather than in other parts. Sometimes this may be referred to greater sensibility, as in the case of the glottis, or glans penis; but sometimes also to an interruption of motion in a nerve, as in the case of rheumatism and of toothach. These last doubts seem to confirm the general conclusion with regard to sensory nerves.

" Here then is another case of pain, the nervous, different from the other three, inflammatory, chemical, and spasmodic. It may depend upon their action, but the pain is produced in a different manner, and leads to a different diagnostic. This leads to

"The *second* difficulty in the case of headach: which is, that in headach, also, it is doubtful if we may conclude from the seat of the pain as to the seat of the disease—whether it be external or internal, or partly the one and partly the other.

"We may conclude that it depends on an internal affection, when, although the pain is referred to an external part, that part is not affected by any external pressure. When it is, we acknowledge an external affection, but we must not immediately conclude that this is the whole, and that there is no internal disease. We know that it is often otherwise.

"Lieutaud mentions above one hundred cases of external headach, in every one of which on dissection an internal affection was found; and here is the difficulty. It may be supposed that the external was primary, and the internal its consequence, as well as that the contrary may happen. But without stopping to shew the improbability of the first supposition, we have other and surer means of determining that an internal affection at least concurs with the external in many cases. These are the presence of symptoms of an affection of the brain, or origin of the nerves: as vertigo, stupor, oblivion, delirium. To these I add, blindness, deafness, loss of smell. These last are indeed ambiguous, and may depend on an external affection of the respective organs; but when joined with the former, which establish an internal affection, it is probable, that both depend on the same cause.

"But in many cases we are certain, that the internal is the primary affection, because the exciting cause is such as must first act there. Such are the passions of the mind;—my own case. If anger or shame produce a suffusion of the face, there is no doubt that this is communicated from the brain; and let it be remarked by the way, that however difficult it may be to explain the manner, these and other expressions of the passions are certain proofs of a communication between the brain and the external parts of the head.

"From the whole of this, the evidence of an internal cause is certain, and its producing external pain, is probable both in fact and from reason. We have given some means of discerning when such causes take place, and we proceed to consider wherein they consist.

" For this we must look into the histories of dissections, and there we find all the same circumstances which we found in the cases of epilepsy ; viz.—Ossified meninges, Collections of acrid matter, Indolent tumours, Turgid blood-vessels, Effusions of blood, Effusions of serum.

" From all this we may draw the same conclusions that we did with respect to epilepsy. But there may be some difficulty. It may be alleged, that such appearances in the cases of headach, which were followed by epilepsy, were to be expected as in epilepsy; but that does not prove that they existed in the preceding headach. Perhaps not certainly ; but let us examine; and, first, it is remarkable, that headach changes into most of the diseases of the head.

" In the cases of headach (above one hundred) mentioned by Lieutaud, there are the clearest proofs of this : There are twenty-five cases changing into lethargy, palsy, and apoplexy ; twenty, into epilepsy and convulsions ; as many into all the different kinds of *vesaniæ*. These are a great part of the whole, and many of the rest are instances to the same purpose.

" From this we form several conclusions :—From their common connexion with headach, it appears that the other diseases have a connexion with each other ; especially from hence, that so many thus connected shew the same appearances upon dissection.

" There is little doubt with respect to the headachs that preceded these diseases. If the latter are supposed to shew an effusion of blood, there will be little doubt that their lesser degrees depended on like causes in a less degree, upon turgescence and increased impetus ; and therefore that the headach depended upon the same.

" The conclusion, upon the whole, is, that the principal diseases of the head, and the headach so generally connected with them, depend commonly and frequently upon the change of the state of the circulation in the vessels of the head. This is particularly confirmed with respect to headach by the consideration of the exciting causes, because one of the most remarkable is fever, and other cases of determination to the brain. We conclude, that one of the most frequent causes is the turgescence or increased impetus of the blood in the vessels of the brain.

"This brings us back to the question, Whether the external headach is a concurrence with or a consequence of the internal? and we think it most commonly the latter. The internal parts are certainly the most sensible; there are many causes which can only act directly upon them; and we have many proofs of the connexion that allows causes acting internally to be communicated to the external parts.

"We have thus given a general idea, admitting of various modifications, which we must not enter upon at present.

"The Case in hand is one of external headach from an internal cause. This last, we conclude, from the double vision attending it. The cause of double vision we refer to the unequal motion of the two eyes, so that the object is not seen in the same place by both eyes. This we suppose fully demonstrated by Dr. Porterfield, and in this case to depend upon a degree of palsy or spasm in the muscles of the eye. This might be supposed to be an affection of the muscles communicated from the neighbouring parts, but is more probably an affection of their nerves from an internal cause.

"Here I think the internal cause is discovered by the double vision only happening on the inclination of the head forward, which, by opposing the gravity to the direction of the blood, retards its motion; and it may do this in the external as well as internal parts, but not so considerably in the first as in the last. The peculiar distribution of the venous blood of the encephalon, and its accumulation in the sinus, gives occasion to stagnation; particularly the motion in the sinus being from before backwards, gives occasion to stagnation upon inclination of the head forward. I have known a case of moderate stooping produce a temporary fit of apoplexy.

"*Vertigo* and *Scotomia* also, which occurred in this instance, are known to arise from compression. I have known them frequently produced by inclining the head forward.

"We have no doubt, therefore, that in the present case there is such a topical affection in the interior part of the brain, as gives occasion to a considerable compression of the third pair of nerves, so often as an inclination of the head produces any degree of stagnation in the motion of the blood.

"There is no very distinct indication for the *cure :* all we can do is to diminish the fulness of the system, and obviate the increase and irritation of the disease by avoiding every cause of turgescence. To this purpose we began with bleeding, and particularly topical bleeding. We joined to that purging, and proceeded to a blister; we repeated the bleeding, and put in a seton."

"At present we shall suppose a species of headach properly idiopathic, and give its history. We shall be liable here to the same inaccuracy which most physicians are guilty of in describing genera rather than species; and it is very difficult to avoid this.

"We shall begin with observing the particular temperament it is apt to affect: this is the sanguine, or rather the sanguineo-melancholic temperament.—This may be distinguished by the following marks; as black hair; a more lean and firm habit; a ruddy, but withal a brown complexion, with large veins, and, abstracting from the ruddiness of the cheeks, with a skin pale, but smooth and soft. This is distinct both from the sanguineous and melancholic temperament. The disorder frequently attacks the purely sanguineous, and no less frequently the purely melancholic temperament. It affects young persons more than old, but oftener about the acmé than any other time of life. It often continues a long time after, but seldom arises in elderly persons: it is more frequent in women than men, in the proportion, perhaps, of ten to one. As to the time of its attack, it is a disorder of all seasons: if it is more general in any one season than the other, it is in the spring.

Such are the predisposing causes of this disorder. As to its occasional causes, it arises in many persons without any observable ones; and where it is exactly periodical, we can scarcely suppose any occasion alcause constantly recurring; though, in the *Hemicrania lunatica*, the state of the moon seems to be such a cause.

There are, perhaps, few disorders which act by paroxysms, that do not depend on occasional causes; and though the patient may not observe these, they may be found out by diligent inquiry. To find out these is one of the most important things in practice; and they really exist always, though sometimes they are very difficult to be discovered. This is very observable in headach, where the slightest changes in diet, exercise, temperature of the air, &c. are sufficient to bring on the disorder. We can mark a great number of these occasional causes; but it is difficult to enumerate them, and still more to arrange them in proper order. The first we shall mention is the plethora. This is a frequent cause, and should, indeed, have been marked as a predisposing cause, as it was in fact, when it was observed that the disorder frequently prevailed in a sanguine habit.

" We mention it here, because whatever increases it may be an occasional cause of headach; such as the fulness of diet, an obstruction in any evacuation, either natural, as menstruation, &c. or spontaneous, as hæmorrhagies at the nose, &c. Thus headach generally prevails at the beginning of menstruation. To this article of increased fulness in the body, we may add costiveness, which often accompanies this disorder, and when extended to a great degree may produce it.

" Perhaps we may join here, cold applied to the extremities, which, by the perspiration being obstructed, will excite fulness in the vessels, and particularly in those of the head. Again, there are other causes which act in producing a temporary turgescence and rarefaction, such as being kept in any great degree of heat, and particularly being exposed to a hot sun, &c. or a change of weather from cold to hot, from heavy to light, and dry to moist; also, whatever increases the impetus of the blood, and quickens the circulation, will have the same effect as a distention of the vessels, and may be an occasional cause. Such is violent exercise, and some of the passions, particularly anger. Those exercises too may be occasional causes which do not excite an impetus of the blood over the whole system, but stop the reflux of the blood from the head, by preventing its free passage through the lungs, and thereby causing a regurgitation; as much and loud speaking, violent laughter, coughing, vomiting, &c. On the same cause, perhaps, but with a greater degree of obstruction, depends the headach which commonly proceeds from fits of the spasmodic asthma.

" To these we may add another set of occasional causes, quite different from the former, and, perhaps, directly opposite. Of this kind are, sudden fear, sudden grief, and particularly any subject of anxiety. To these we may add, excess of study, not only such as is keen and intense, but that which is long protracted and accompanied with watchings. This last is a frequent cause; and yet not less frequently the headach is occasioned by too much sleep, and, in some people, even by the ordinary sleep. Sleeping at unusual hours, as in the afternoon, is very apt to bring it on; an abstemious way of life is another cause; and we have known several instances of persons cured of the headach by using a fuller diet; it may also be occasioned by evacuations, if too large and too long continued.

" We mentioned above, that headach frequently proceeded from obstruction of some usual evacuation; yet it arises no less frequently from too copious evacuations, and none are more subject to it than women with too copious a menstrual flux, or men with an hæmorrhoidal flux. In this case it attacks women at the going off of menstruation, as in the other it did in the beginning. In short, there are instances of its being occasioned by every thing that weakens the body. One of the most frequent causes is the application of cold, particularly to the head; and this is relieved by warmth. To this we must add, riding in the wind; but whether this is merely from the same cause, is uncertain. Again, various odours, whether fragrant or fœtid, will sometimes produce headach; wine too will have this effect, either when taken in such a quantity only as to heat the body, or after intoxication; opium will, in some persons, produce similar effects, and probably other narcotics, and among these the metallic, which is more evident from arsenic and mercury than any other. All strong impressions on any of the senses, as violent noises, strong light or odours, may also be occasional causes. There are some other circumstances more difficult to be explained. Thus, whatever produces vertigo, as the looking upon a stream of water, or from a great height, will often occasion headach. Whether these occasion slight temporary headachs only, or the proper idiopathic ones, is not certain; but we should imagine that the last is the case.

"We are next to speak of the proper form, in the series and combination of symptoms. Headach sometimes seizes suddenly and with great violence, but more commonly comes on in a more gradual manner. In this last case, it often begins with a sense of weight, as if there was a leaden cap on the patient's head; oftentimes with a sense of turgescence and fulness; often, too, with a stiffness and constriction about the head; frequently there is a sense of cold about the head, or perhaps an affection of the skin and hairs, which become more or less bristly. The disorder beginning generally with one or other of these symptoms, changes to a more formal and fixed pain: this, again, is of various kinds; frequently a kind of soreness is felt over the skin of the head, such as is usual after any great fatigue, and what by some authors is called *lassitudo ulcerosa;* sometimes there is a sense of fulness, as if something was constringing the head, or violently distending it. These two are often confounded together, as they somewhat resemble each other. Oftentimes there is a more piercing pain, or *terebrus*, as if a nail was thrust into some particular part. All these are attended with a strong pulsation in the temporal arteries and in the other parts, and which is even perceptible by the eye.

"These different feelings of pain are again distinguished as they are more diffused or definite; generally they are limited so as to affect one side more than the other; they are often situated over one eyelid, as also upon the summit of the head, but more towards its anterior part; frequently they are confined to the temples, or perhaps to the temporal muscles; whereever they fix, they are more gentle at first, but gradually become very violent. This is commonly attended with a sense of heat; often the face becomes turgid and ruddy, but not with an uniform redness, though discoloured with red spots; sometimes, however, it is without any of this turgescence, redness, or bloatedness, and the whole countenance is pale and cold. When these pains are very severe, and continue for a long time, the eyelids fall, tears flow involuntarily, the eye is suffused, and the albuginea more or less inflamed, and vision becomes obscure, or is entirely destroyed. Commonly, there is more or less vertigo added to these symptoms. The ears are also affected, as they have a sensation of various noises, as of storms of wind, rushing of waters, a symptom which is termed *tinnitus aurium*. Oftentimes too the smell and taste are affected, and almost destroyed. But we must observe, that, instead of these symptoms, there is frequently an increase of sensibility, so that the smallest light, or gentlest noise, disturbs the patient. The internal senses are also affected, the memory is impaired, the imagination incoherent, and, from a want of attention, the judgment is disturbed. Sometimes the headach produces a *deliquium animi*, though not very frequently. It often is attended with bilious vomitings, and commonly with a costive belly, and paleness of urine. After all these have continued for some time, a stupor and sleep come on, which terminate the fit.

" As to the state of the pulse, oftentimes, even in violent and long-continued headachs, it is not sensibly altered from its ordinary state. In other cases it is altered, and very variously, becoming not uncommonly less frequent than before. In other cases it is not changed in its frequency, but becomes fuller during the paroxysm, especially in the parts affected, whence arises the throbbing and perceptible pulsation, accompanying this disorder. But sometimes this fulness is also accompanied with an increase of frequency.

" We mentioned that the connexion between the different states of the temperature of the parts and the state of the pulse is very decernible. Thus, where there is a sense of cold with a pale skin, the pulse is either less frequent, or, at least, is not increased in that respect. Where there is a heat in the part, frequently accompanied with swelling and with more or less redness, the pulse is more full and frequent.

" We have now spoken of the form of the disease, and shall only add a few general remarks upon its recurrence. The paroxysms vary in the degrees of violence, duration, and period. They come on at different times of the day; as, in some, on waking in the morning; in others, at noon or soon after meals; frequently in the evening; and in some persons, after going to bed, and towards midnight. They differ also greatly in their duration, continuing for some hours, sometimes for days. They have almost always a remission, and return at certain intervals, which in some are exact, in others very irregular. Of the exact intervals there is also a great variety, some returning daily, others in a tertian form, some monthly, others again, annually.

" The consequences of these headachs are frequently one or other of the various disorders of the head, as oblivion, fatuity, and mania. Oftentimes they end in epilepsy, palsy, or apoplexy: sometimes they fall upon the exterior parts of the head, affecting the senses and their peculiar organs, as the eyes, with more or less suffusion, and often with an *amaurosis* or *gutta serena ;* and also the ears, impairing or destroying the sense of hearing. A common effect, where the pain is situated over one eyebrow, is to leave that eyelid paralytic. Frequently the temporal muscles are affected with a palsy or atrophy. Such are the chief effects of an idiopathic headach.

" In order to judge here what are the proximate causes of headach, and how it may operate in producing these topical affections, or the disorders attending it, we must enter into the theory of the disease.

" In the first place, the headach may proceed from simple fulness, and the distention occasioned thereby, which gives the *Cephalalgia plethorica.* Thus we see it manifestly arising from all the causes which produce or increase a fulness of the blood-vessels, which occasion a temporary rarefaction, or which determine the blood in a greater force, or in a larger quantity, to the vessels of the head. This is sufficiently explained by the occasional causes of this disorder which we have already mentioned. We shall only illustrate it by a single instance of a person who laboured under an *ascites*, founded on osteosteatomatous tumours, occupying a large portion of the abdomen ; these compressing the blood-vessels, produced many various swellings in the vessels of the lower extremities, and a constant fulness in the veins of the head, so as to occasion violent headachs ; any stooping in particular, brought on headach, dimness of sight, giddiness, stupor, partial paralytic affections, and sometimes formal fits of apoplexy, lasting several hours. This shews how the headach may frequently be produced by various inclinations of the head. This is the most simple view of headach, as depending on plethora, which is often slight and transitory, though there is a variety in this respect according to the cause. Thus, even in this plethoric state, when there is a greater tendency to hæmorrhagies, there are more formal paroxysms of the headach.

"There is another case, depending on a rheumatic affection, the pain being the same with that occurring in rheumatic affections of other parts. Here there is an increased impetus in vessels not suited to hæmorrhagies, because they are enclosed in the membrane of the muscles. To understand this, we must look into the writings of the Stahlians, who tell us, that there are *Congesta completa et incompleta*, the former of which answer to the proper hæmorrhagies, and the latter to the rheumatism; so that in both cases they suppose the *Molimina hœmorrhagica*, or an increased impetus of blood to the part to exist. This doctrine, with a little improvement, would be very just. What the difference in the state of the vessels is, we shall not explain at present. Besides this, there is, perhaps, some difference also in the causes of each affection. But however this may be, it is certain that there is a paroxysm of headach of the rheumatic kind.

"There is likewise another headach of the arthritic kind, which is also another of the *Congesta*. How far this differs from the rheumatic it is difficult to explain. It differs however in this, that the arthritic headach arises from an interruption of the usual determination of such arthritic affections, and is relieved by their return.

"There is a fourth case depending on a topical fever. Intermittent fevers, during an epidemic period, often operate solely in producing headachs. Perhaps then we have headachs precisely in the situation of intermittents, with this difference only, that they are topical instead of general. Whether there are not topical fevers of other kinds, which are the foundations of various headachs, is not determined, but seems probable.

"These four species, appearing in paroxysms, are all analogous; and in proportion as a person is acquainted with the doctrine of fevers, will he understand the state of these headachs, and their proximate causes. They begin with a cold fit, or with symptoms analogous to it; such as, a general *horripilatio*, and a sense of coldness in the part, which is frequently succeeded by a hot fit, shewing at least an increased impetus in the part itself.

Sometimes this is communicated to the rest of the system, and produces a more frequent pulse. They terminate also like fevers, with hæmorrhagies, with sweatings either in the part itself, or more generally, and oftentimes with swellings of a particular part, as in the rheumatism. Frequently they are without any sensible resolution; but this also happens in many fevers.

"The principal headachs, then, we refer to topical fever. As in other fevers, so here is a cold and hot fit in various degrees. In some fevers there is only a cold fit, which immediately kills the patient; in others it is succeeded by a hot fit, and this having various proportions to the cold fit, and with various resolutions.

"These fevers of headach are also of different kinds, and mark out the different prevalency of the cold and hot fits. To explain this, we must make a few remarks upon the nature of pains. There are some pains depending on a stimulus, or some acrid matter applied to the part: but as this is common to every part of the system we shall omit it here, and only take notice of those pains which are more immediately connected with the vascular system, and occur in the extremities of vessels. These are of two kinds, one of which proceeding from distention, and which occurs in the plethoric headach, is well understood, and perhaps the only one generally thought of. The other kind of pain is analogous to an external force compressing and constricting the nerves; and perhaps of this kind is the pain arising from spasmodic constrictions. Such too is the pain arising from cold; this condenses all bodies, and constringes the extremities of nerves; but whether it acts merely thus, or produces spasmodic constrictions, is difficult to determine. Such constrictions do arise from cold, and are relieved by heat; thus many headachs are accompanied with a sense of cold; and there are instances of the same in other parts, as in particular joints, which are only removed by restoring the impetus of the blood to them; and though this causes a distention, it cures them. This pain then appears to be opposite to the distending pain, which occurs chiefly in attacks of headach and fevers, and often in chronic rheumatisms. In several instances of headach, these two pains are more or less mixed; thus in the febrile headach itself, the pain coming before the cold fit, or accompanying it, cannot be of the distending kind, but must certainly be the constricting; as there is then every proof that the blood is not impelled into the head with the same impetus as usual. These pains thus differing as they recur at different periods of the headach, are often connected with each other. Thus the distending pain, as in hæmorrhagies, by occasioning spasms, lays the foundation for the constricting; and the constricting pain, when produced, proves a stimulus, and occasions the distending, as in fevers, inflammation, &c. When the distending pain has continued in a part for any time, it leaves it in a state to be affected by the constricting. Thus, acute rheumatism is often attended by the chronic, and this by the palsy. This is often propagated to the origin of the nerves; so that other parts are affected, as being connected with the *sensorium commune*: but these pains are often separate, and the constricting is frequently found alone.

" As headach proceeds from various causes, either of these different states may prevail: thus, on the one hand, various causes produce paroxysms of the distending pain, which were marked out among the occasional causes, under the titles of fulness, temporary rarefaction, and determination to the vessels of the head. On the other hand, the constricting pain is occasioned by cold, and all weakening causes;—by the passions, as by fear and grief; by watchings, study, evacuations, abstinence; by all such causes as diminish the force of the nervous power, or, by an external application, bring on a constriction of the part. This pain thus produced, does not always prove a stimulus, or bring on the distending pain. What has been here said, will explain the various causes of headach.

" In the febrile headach there is a more certain paroxysm; in the rheumatic, it is longer and more uncertain. With regard to the headach depending on a topical fever, a question may arise, what species of fever it might be, and when it properly partakes of the nature and genius of an intermittent. Sauvages has been so exact here as to distinguish both a *Cephalœa* and *Hemicrania intermittens*, though there are several other periodical species. This, when discovered, leads more directly to the method of cure, and shows when the bark may be properly applied.

" To distinguish then what periodical headachs immediately partake of the nature of an intermittent, the following considerations will be of service; as, 1. Whether any intermittent is epidemical? then, 2. Whether the climate is subject to these epidemic intermittents, though they do not actually prevail at the time? 3. Whether it is the usual season of the year for such, as spring and autumn? 4. If the patient has formerly laboured under a headach, as connected with an intermittent? Thus, a person who had before been cured by the bark of a periodical headach, which he had during an epidemical intermittent, was, on its returning, cured of it on the footing of an intermittent. 5. At what period these headachs return? If it be a quotidian, they are more ambiguous; but if tertian, we may judge with more certainty. 6. What is the time of their coming on? If it be in the evening, they have less of the nature of the intermittent, which is more common at noon, or in the forenoon. 7. Whether these returns are strictly periodical? for, in a proper intermittent, they are usually more or less postponed. By these means we may in some measure judge how far they partake of the nature of the intermittent.

"There are some symptoms which exclude this intermittent nature; as when we discover the headach to be connected with affections of any particular viscus, or of other parts of the body, as the stomach, flatulency of the bowels, arthritic fits, &c. When we discover the headach to depend on occasional causes, and to have its intervals varied by these, there is great reason to suspect that it is not of the proper intermittent kind. But this is not a certain proof; for the occasional causes do take place in intermittent fevers; yet these are wonderfully steady in their periods, independent of such causes.

"We must now add, that besides the principal idiopathic headach, which may be looked upon as a topical fever, there are other kinds, which we know not where to refer. Such is the *Cephalalgia melancholica*, which is often accompanied with dimness of sight, vertigo, &c. and succeeded by epilepsies, apoplexies, palsies, and often too with mania. This has a manifest connexion with the stagnation of the blood in the vessels of the brain, and is particularly prevalent in the melancholic temperament, and so depending on a plethora in the venous system. Whether it is purely plethoric, or depending on a febrile paroxysm, has not been determined; but it seems rather of the first kind. It does indeed appear sometimes in fits of a topical fever; but such instances are very rare. Its occasional causes may perhaps be referred to these two heads, 1. Such as hinder the reflux of the venous blood from the vessels of the head, as stooping, &c. 2. Whatever weakens the system, and diminishes the impetus of the nervous power. Thus melancholy, hypochondriasis, and such others, will excite occasional fits of this headach, for it is seldom periodical. What is its particular nature has not been determined.

"Another of these species of headachs, which cannot easily be referred to the principal idiopathic, is that connected with the menstrual or hæmorrhoidal flux, and called *Cephalalgia catamenialis and hœmorrhoidalis.* The coming on of the hæmorrhoidal flux is not exactly periodical, and is often foretold by this headach. The notion which would most readily occur here is, that the plethora is owing to some resistance made to the blood, as it endeavours to pass off by these vessels, whereby it is made to regurgitate on the brain. But this is liable to many difficulties; and all the arguments which, in the question, Whether the plethora of the menstrual flux is universal or topical, have been brought against an universal plethora, will apply here. Still, however, the menstrual and hæmorrhoidal flux are to be looked upon as topical fevers, founded on a turgid state of the vessels of the uterus and anus: even a moderate turgescence here, without a plethora of the other vessels, may excite a painful tension in other parts of the system, and promote the impetus in them; and it accordingly does so. Thus, when the menstrual flux is obstructed, it is sometimes determined to the lungs, sometimes to the stomach, and may easily be so to the head, independently of any general plethora of the system. There is, indeed, either something particular in the vessels of the head, or it is in consequence of its communication with the *sensorium commune*, that the head is so much affected in all fevers. But why it is so, has not been yet fully solved. Taking the catamenial and hæmorrhoidal headachs, then, in this view, as topical fevers, we may observe, that there is a headach, which often follows these discharges, when they have been remarkably plentiful. This, then, cannot be of the plethoric kind, but of the constricting.

" Besides these species of headach, in which it is doubted whether they are topical fevers, there is another species, which has been named since Riverius, the *Cephalalgia stomachica.* This is explained by consent, or sympathy, which we showed before not to depend on any connexion between the nerves in the two parts, but upon an impression made on one part, and communicated to the other, from a particular aptitude in the last to receive such: thus, the different states of the stomach are found to affect the head, and may undoubtedly be the foundation of headach.

" The stomach has a particular connexion with the nerves all over the system, whence it is so much affected in all fevers. Crudities of the stomach are frequently found to bring back an intermittent fever, after it has once ceased; and perhaps, too, to give rise to it. We may conclude then, that the same state of it may bring on headach. There is another case of a stomachic headach, where, from a change of the determination to the uterus, the stomach is affected; and this may be translated to the head, with this effect, that the pains in the stomach and head become alternate with each other. Thus they may continue in the stomach for some days, and then remove to the head, and the stomach will be relieved: thus, in a case of a headach, accompanied with an inflammation in the eyes, this inflammation, and the pains of the stomach, alternated with each other.

" Besides these species of headachs, which seem doubtful, there are others which are not at all of the febrile kind; such are those depending on more particular topical affections of the brain, or stimuli, such as tumours, and various erosions. These produce headachs of a permanent kind; but as they are liable to be increased by occasional causes, they may have exacerbations, and so appear almost periodical, coming on at a particular time of the day, as towards the evening.

" Before we proceed to speak of the method of Cure, we must mention an observation of Lieutaud on this disorder. He says that he cannot lay down any direct plan for the cure of headach, but only mention what medicines have been used for it. What he observes of this, is the state of empiricism in every disease.

" It is easy to perceive, that there must be different methods of cure here, adapted to the nature of different species of headach.

"In the simple plethoric headach immediate relief may be given by bleeding; but its effects are only transitory; and if often repeated, it may be hurtful, as frequent bleeding is equally apt to bring on a return of the plethora, as the most plentiful diet is. It should, therefore, be used with caution, and along with it may be employed abstinence and moderate exercise, to prevent any accumulation for the future, by supporting the usual discharges. But it seldom happens that headach which subsists for a long time, is purely plethorical; it should, therefore, be treated as a topical fever, but variously, according to the various circumstances causing it. These, whether exactly periodical or not, have their intervals and returns, and to prevent these returns is the chief business of the physician. The disease is often owing to a plethoric state in the vessels of the head, either in consequence of an universal plethora, or a particular determination to that part. Where this is very evident, and the fever produces a hot fit, attended with an increase of heat, a frequent pulse, or only a full one with throbbings, there the cure is to be found only in blood-letting.

" When there are only presumptions of a plethora, regard must be paid to circumstances, as, if it occurs in young persons, in the spring season, &c. In general, bleeding should only be used where the plethora is evident. Topical bleeding is most proper, as by leeches, or cupping-glasses. If it is thought proper to open a vein, it will be more proper to open the jugular than that of the arm; but here too, we must observe that the effects of bleeding are only temporary. A more effectual remedy is the use of purgatives; these have not such an immediate effect in taking off the plethora and diminishing the heat, though they do this too; but they may be more safely repeated, and so are more permanent, and have a peculiar advantage in causing a derivation from the head. The headach has, accordingly, been frequently cured by moderate, but habitual laxatives. If valerian ever cured this disorder, as has been asserted, it was by acting as a laxative, of which we have several proofs now in the Royal Infirmary. Accordingly, there are two instances mentioned by Dr. Fordyce and Dr. Whytt, in which valerian cured the headach, by being given in a large dose, as ʒii or ʒiii a day.

" There is another remedy, which is somewhat analogous to this, in deriving from the head, a pediluvium ; for, by relaxing the lower extremities, it takes off the tension from the vessels and membranes of the head.

" But the most effectual remedy, either in a more general or partial plethora, especially in young persons, is a low diet, consisting chiefly of vegetable matter ; and keeping up a proper perspiration at the same time, and an equable determination of blood by moderate exercise.

" These remedies act more generally upon the system. There are others which act more topically on the head ; such are blisters, as acting either by evacuation only, or by removing the spasmodic affections which are the foundations of the disease. Issues are also of considerable service, if we consider the nature of the matter evacuated by them, which is the coagulable lymph ; these, then, keep the vessels more relaxed and empty ; they are also ready as outlets to carry off any superfluous matter, in case of any unequal determination to the part. The nearer they are to the part, the more effect both they and the blisters must undoubtedly have, though they may be of service, too, at a greater distance.

" In all cases of congestion and determination to the particular parts, relief may be obtained by increasing the contiguous secretions, as here of the mucus of the nose. This is the foundation of the application of Sternutatories, and particularly of the Asarum, which may be managed so as to cause a secretion of the mucus, with the appearance of pus, aud then it is often an useful remedy. These remedies are proper where the returns depend on a particular turgescence of the vessels of the part.

" When there are symptoms of a cold fit approaching, other means should be used to prevent its return. If it comes at a considerable interval and exact period, the bark is most proper. Where the headach has any of the properties of the intermittent fever, which have been already mentioned, it is almost the only thing to be depended on. But there are other cases somewhat periodical, where it may be hurtful ; as in those cases, depending on a turgescence, either general or particular ; hence, it is not thought safe to give the bark in vernal intermittents, lest it should excite inflammation; for it will, perhaps, prevent the cold fit, but not the determination of the blood to the parts, and the increased impetus occasioned thereby.

"When the bark is employed in the headach, it must be given in the same manner as in an intermittent, in large doses, and near the approach of the fit. Where the bark is used, the use of evacuations, low diet, &c. is excluded, as is the case in other intermittents.

"Besides the bark, opium is a means of preventing the return of these fits of headach. It has been tried with and without success, and sometimes with bad effects. There is a dispute between Lieutaud and Storck, concerning its use in intermittents, and as it is proper or improper in them, so must it be here.

"A third means of preventing the return, is, by exciting an artificial fever, by promoting a determination to the surface, or even bringing on an actual sweat: this is done by emetics and other sudorifics, and particular stimuli. This is the foundation of the use of volatile alkali; thus, large doses of Sal Corn. Cerv. (Ammonia) have been found to prevent a return of the fit. Emetics, and opium combined, have often been of service, as in the case of Dover's powders.

"There is another case still remaining, of those headachs which properly appear in the paroxysms of a topical fever, but have the cold fit more considerably prevailing: the method of cure must here, too, turn on preventing the return of the fits in general. Every thing is proper that tends to invigorate the system, as bark, bitters, chalybeates, exercise, &c. But, further, these require a particular consideration of occasional causes, and of the means of avoiding them: which may be referred to two general heads, one of which is cold, one of the most frequent occasions of the paroxysms of this kind of headach. The common way of preventing this, by warm coverings, is very precarious; for the utmost exactness is requisite in keeping them on; and the least neglect of this, exposes the patient to the effects of cold; besides this, they are seldom effectual, so that the patient is always wanting an addition to be made to them.

A much more effectual method is cold-bathing, which has often proved of service, after warm coverings and other such things have been tried in vain, by enabling the body to resist the cold air, when applied. The second general head turns on avoiding every thing which may weaken the system, as abstinence, evacuations, &c. In this kind of headach, two topical applications are more particularly admissible during the fit.

"In hot fits of headach, warm applications rather aggravate the pain; but cold applications have been thought useful in this case: these, however, are precarious, and even of dangerous effect; for, by preventing the increased impetus, they often increase the force of the determination to the part. If they should happen, too, to correct the fit, they may perhaps change it to some more dangerous affection of the brain: thus a paralytic affection of the external parts, as particularly of the eyelid, is often the consequence of cold applications during fits of the headach. None of them are proper in a hot fit; but, in a cold one, warm clothes, fomentations, warm bags, &c. often give much relief. Their use seems to be confined to such cases, where strong odours are of service. Thus, in a cold fit, the volatile or even caustic alkali, as in the *Eau de luce*, is very useful; or spirits of wine, as Hungary water. There are some other external applications peculiarly adapted to these fits, as æther, which is perhaps only proper here. It acts, not only as an antispasmodic, but, by exciting heat, and a swelling of the part: and, if it has not this effect, it is seldom of any great service. The usual way of applying it, is to put a little of it in the hollow of the hand, and hold it to the pained part, till the glowing heat is removed; but it is apt to escape from the hollow of the hand; so that it is better to dip a little ball of cotton in æther, and apply it to that part, covering it with one's hand, or with a bladder between one's hand and the forehead. Warm applications, stimuli, antispasmodics, &c. may also be used: thus, the essence of lemons, with volatile alkali, is often of equal service with æther, and was accordingly frequently used by the late Dr. Ward. All these are improper in the hot fit, in which topical bleedings are the most sure method of relief.

A pediluvium may be of service here, as also a glyster, in taking off the impetus of the blood to the part, and in promoting a relaxation. These are the principal remarks we have to offer on the proper idiopathic headach.

"The sympathic headachs, as those depending upon the gout, on the state of the menstrual or hæmorrhoidal flux, &c. must be referred to those particular subjects."

PART III.

OF CACHEXIES.

MDXCIX. Under this title I propose to establish a class of diseases, which consist in a depraved state of the whole, or of a considerable part, of the habit of the body, without any primary pyrexia or neurosis combined with that state.

"The idea of my system of Nosology proceeds on the view, that pathology generally considers symptoms as they affect the three several classes of functions, the vital, animal, and natural. Our Pyrexiæ comprehended the vital functions. The Neuroses, though extended to the whole of the nervous system, yet chiefly had in view the animal functions, and this class, the Cachexiæ, comprehends the affections of the natural function ."

MDC. The term *Cachexy* has been employed by Linnæus and Vogel, as it had been formerly by other authors, for the name of a particular disease; but the disease to which these authors have affixed it, comes more properly under another appellation; and the term of *Cachexy* is more properly employed by Sauvages and Sagar for the name of a class. In this I have followed the last-mentioned nosologists, though I find it difficult to give such a character of the class, as will clearly apply to all the species I have comprehended under it. This difficulty would be still greater, if, in the class I have established under the title of *Cachexies*, I were to comprehend all the diseases that those other nosologists have done; but I am willing to be thought deficient rather than very incorrect. Those difficulties, however, which still remain in Methodical Nosology, must not affect us much in a treatise of practice. If I can here properly distinguish and describe the several species that truly and most commonly exist, I shall be the less concerned about the accuracy of my general classification: though at the same time this, I think, is always to be attempted; and I shall pursue it as well as I can.

"It is not possible to say any thing more on the class generally considered. It is artificial, comprehending diseases which have little connexion with one another. I give therefore very little introduction to either the class or the orders; but if we keep in view what belongs to particular diseases, we need be less anxious about the establishment of orders and classes."

BOOK I.

OF EMACIATIONS.

MDCI. Emaciation, or a considerable diminution of the bulk or plumpness of the whole body, is for the most part only a symptom of disease, and very seldom to be considered as a primary and idiopathic affection. Upon this account, according to my general plan, such a symptom might perhaps have been omitted in the Methodical Nosology: but both the uncertainty of concluding it to be always symptomatic, and the consistency of system, made me introduce into the Nosology, as others had done, an order under the title of *Marcores;* and this renders it requisite now to take some notice of such diseases.

"I believe for my own part, that all the *marcores* are symptomatic, and not primary diseases; it is merely in compliance with the other systems that I have at all proposed to enter into the consideration of these two genera.

"You will perceive that my character of *tabes* is not complete, and that by removing the *phthisis* from this order, I have been led into an omission. This it is perhaps not necessary to supply; but you may add to the definition *sine tussi et expec-*

toratione, in order to distinguish the *tabes* from the *phthisis pulmonalis.* Further, the presence of fever is here the distinguishing symptom, and that is universally of the hectic kind: now if we were right before in maintaining that there is no idiopathic hectic, then there can be no idiopathic tabes: and of that I am quite convinced, and it appears upon merely inspecting the enumeration of Sauvages' species."

MDCII. Upon this occasion, therefore, I hope it may be useful to investigate the several causes of emaciation in all the different cases of disease in which it appears. And this I attempt, as the surest means of determining how far it is a primary or a symptomatic affection only; and even in the latter view, the investigation may be attended with some advantage.

MDCIII. The causes of emaciation may, I apprehend, be referred to two general heads; that is, either to a general deficiency of fluid in the vessels of the body, or to the particular deficiency of the oil in the cellular texture of it. These causes are frequently combined together; but it will be proper, in the first place, to consider them separately.

MDCIV. As a great part of the body of animals is made up of vessels filled with fluids, the bulk of the whole must depend very much on the size of these vessels, and the quantity of fluids present in them: and it will, therefore, be sufficiently obvious, that a deficiency of the fluids in these vessels, must, according to its degree, occasion a proportionate diminution of the bulk of the whole body. This, however, will appear still more clearly from considering, that in the living and sound body, the vessels every where seem to be preternaturally distended by the quantity of fluids present in them; but being at the same time elastic, and constantly endeavouring to contract themselves, they must on the withdrawing of the distending force, or, in other words, upon a diminution of the quantity of fluids, be in proportion contracted and diminished in their size: And it may be further observed, that as each part of the vascular system communicates with every other part of it; so every degree of diminution of the quantity of fluid, in any one part, must in proportion diminish the bulk of the vascular system, and consequently of the whole body.

MDCV. The diminution and deficiency of the fluids may be occasioned by different causes: such as, first, by a due quantity of aliments not being taken in; or by the aliment taken in not being of a sufficiently nutritious quality. Of the want of a due quantity of aliment being taken into the body, there is an instance in the *Atrophia lactantium* Sauvagesii, species 3.; and many other examples have occurred of emaciation from want of food, occasioned by poverty, and other accidental causes.

With respect to the quality of food, I apprehend it arises from the want of nutritious matter in the food employed, that persons living very entirely on vegetables are seldom of a plump and succulent habit.

MDCVI. A second cause of the deficiency of fluids may be, the aliments taken in not being conveyed to the blood-vessels. This may occur from a person's being affected with a frequent vomiting; which, rejecting the food soon after it had been taken in, must prevent the necessary supply of fluids to the blood-vessels.

Another cause, frequently interrupting the conveyance of the alimentary matter into the blood-vessels, is an obstruction of the conglobate or lymphatic glands of the mesentery, through which the chyle must necessarily pass to the thoracic duct. Many instances of emaciation, seemingly depending upon this cause, have been observed by physicians, in persons of all ages, but especially in the young. It has also been remarked, that such cases have most frequently occurred in scrofulous persons, in whom the mesenteric glands are commonly affected with tumour or obstruction, and in whom, generally at the same time, scrofula appears externally. Hence the *Tabes scrophulosa Synop. Nosolog.* (gen. LXIX.). And under these I have put as synonymes, *Tabes glandularis*, sp. 10.; *Tabes mensenterica*, sp. 9.; *Scrophula mesenterica*, sp. 4.; *Atrophia infantilis*, sp. 13.; *Atrophia rachitica*, sp. 8.; *Tabes rachialgica*, sp. 16. At the same time, I have frequently found the case occurring in persons who did not show any external appearance of scrofula, but in whom the mesenteric obstruction was afterwards discovered by dissection. Such also I suppose to have been the case in the disease frequently mentioned by authors under the title of the *Atrophia infantum.* This has received its name from the time of life at which it generally appears; but I have met with instances of it at fourteen years of age ascertained by dissection. In several such cases which I have seen, the patients were without any scrofulous appearances at the time, or at any period of their lives before.

In the case of phthisical persons, I shall hereafter mention another cause of their emaciation; but it is probable that an obstruction of the mesenteric glands, which so frequently happens in such persons, concurs very powerfully in producing the emaciation that takes place.

Although a scrofulous taint may be the most frequent cause of mesenteric obstructions, it is sufficiently probable that other kinds of acrimony may produce the same, and the emaciation that follows.

It may perhaps be supposed, that the interruption of the chyle's passing into the blood-vessels may be sometimes owing to a fault of the absorbents on the internal surface of the intestines. This, however, cannot be readily ascertained: but the interruption of the chyle's passing into the blood-vessels may certainly be owing to a rupture of the thoracic duct; which, when it does not prove soon fatal, by occasioning a hydrothorax, must in a short time produce a general emaciation.

MDCVII. A third cause of the deficiency of the fluids may be a fault in the organs of digestion, as not duly converting the aliment into a chyle fit to form in the blood-vessels a proper nutritious matter. It is not, however, easy to ascertain the cases of emaciation which are to be attributed to this cause; but I apprehend that the emaciation which attends long subsisting cases of dyspepsia, or of hypochondriasis, is to be explained chiefly in this way. It is this which I have placed in the Nosology under the title of the *Atrophia debilium;* and of which the *Atrophia nervosa,* Sauv. sp. 1. is a proper instance, and therefore put there as a synonyme. But the other titles, of *Atrophia lateralis,* Sauv. sp. 15. and *Atrophia senilis,* Sauv. sp. 11. are not so properly put there, as they must be explained in a different manner.

MDCVIII. A fourth cause of a deficiency of the fluids in the body, may be excessive evacuations made from it by differrent outlets; and Sauvages has properly enumerated the following species, which we have put as synonymes under the title of *Atrophia inanitorum;* as, *Tabes nutricum*, sp. 4. *Atrophia nutricum*, sp. 5. *Atrophia a leucorrhœa*, sp. 4. *Atrophia ab alvi fluxu*, sp. 6. *Atrophia a ptyalismo*, sp. 7.; and lastly, the *Tabes a sanguifluxu;* which, it is to be observed, may arise not only from spontaneous hæmorrhagies or accidental wounds, but also from blood-letting in too large a quantity, and too frequently repeated.

Upon this subject it seems proper to observe, that a meagre habit of body frequently depends upon a full perspiration being constantly kept up, though at the same time a large quantity of nutritious aliment is regularly taken in.

MDCIX. Besides this deficiency of fluids from evacuations by which they are carried entirely out of the body, there may be a deficiency of fluid and emaciation in a considerable part of the body, by the fluids being drawn into one part, or collected into one cavity; and of this we have an instance in the *Tabes a hydrope*, Sauv. sp. 5.

MDCX. In the Methodical Nosology, among the other synonymes of the *Atrophia inanitorum*, I have set down the *Tabes dorsalis;* but whether properly or not, I at present very much doubt. In the evacuation considered as the cause of this tabes, as the quantity evacuated is never so great as to account for a general deficiency of fluids in the body, we must seek for another explanation of it. And whether the effects of the evacuation may be accounted for, either from the quality of the fluid evacuated, or from the singularly enervating pleasure attending the evacuation, or from the evacuation's taking off the tension of parts, the tension of which has a singular power in supporting the tension and vigour of the whole body, I cannot positively determine; but I apprehend that upon one or other of these suppositions the emaciation attending the Tabes dorsalis must be accounted for; and, therefore, that it is to be considered as an instance of the *Atrophia debilium*, rather than of the *Atrophia inanitorum.*

MDCXI. A fifth cause of a deficiency of fluids and of emaciations in the whole or in a particular part of the body, may be the concretion of the small vessels, either not admitting of fluids, or of the same proportion as before; and this seems to me to be the case in the *Atrophia senilis*, Sauv. sp. 2. Or it may be a palsy of the larger trunks of the arteries, rendering them unfit to propel the blood into the smaller vessels; as is frequently the case of paralytic limbs, in which the arteries are affected as well as the muscles. The *Atrophia lateralis*, Sauv. sp. 15. seems to be of this nature.

MDCXII. A second general head of the causes of emaciation I have mentioned, in MDCII., to be a deficiency of oil. The extent and quantity of the cellular texture in every part of the body, and therefore how considerable a part it makes in the bulk of the whole, is now well known. But this substance, in different circumstances, is more or less filled with an oily matter; and therefore the bulk of it, and in a great measure that of the whole body, must be greater or less according as this substance is more or less filled in that manner. The deficiency of fluids, for a reason to be immediately explained, is generally accompanied with a deficiency of oil: but physicians have commonly attended more to the latter cause of emaciation than to the other, that being usually the most evident; and I shall now endeavour to assign the several causes of the deficiency of oil as it occurs upon different occasions.

MDCXIII. The business of secretion in the human body is in general little understood, and in no instance less so than in that of the secretion of oil from blood which does not appear previously to have contained it. It is possible, therefore, that our theory of the deficiency of oil may be in several respects imperfect; but there are certain facts that may in the mean time apply to the present purpose.

MDCXIV. First, it is probable, that a deficiency of oil may be owing to a state of the blood in animal bodies less fitted to afford a secretion of oil, and consequently to supply the waste of it that is constantly made. This state of the blood must especially depend upon the state of the aliments taken in, as containing less of oil or oily matter. From many observations made, both with respect to the human body and to that of other animals, it appears pretty clearly, that the aliments taken in by men and domestic animals, according as they contain more of oil, are in general more nutritious, and in particular are better fitted to fill the cellular texture of their bodies with oil. I might illustrate this, by a minute and particular consideration of the difference of alimentary matters employed; but it will be enough to give two instances. The one is, that the herbaceous part of vegetables, does not fatten animals so much as the seeds of vegetables, which manifestly contain in any given weight a greater proportion of oil; and a second instance is, that in general vegetable aliments do not fatten men so much as animal food, which generally contains a larger proportion of oil.

It will be obvious, that upon the same principles a want of food, or a less nutritious food, may not only occasion a general deficiency of fluids (MDCIV.), but must also afford less oil, to be poured into the cellular texture. In such cases, therefore, the emaciation produced is to be attributed to both these general causes.

MDCXV. A second cause of the deficiency of oil may be explained in this manner: It is pretty manifest, that the oil of the blood is secreted and deposited in the cellular texture in greater or less quantity, according as the circulation of the blood is faster or slower; and therefore that exercise, which hastens the circulation of the blood, is a frequent cause of emaciation. Exercise produces this effect in two ways: 1*st*, By increasing he perspiration, and thereby carrying off a greater quantity of the nutritious matter, it leaves less of it to be deposited in the cellular texture; thereby not only preventing an accumulation of fluids, but, as I have said above, causing a general deficiency of these, which must also cause a deficiency of oil in the cellular texture. 2*dly*, It is well known that the oil deposited in the cellular texture, is, upon many occasions, and for various purposes of the economy, again absorbed, and mixed or diffused in the mass of blood, to be from thence perhaps carried entirely out of the body by the several excretions. Now, among other purposes of the accumulation and re-absorption of oil, this seems to be one, that the oil is requisite to the proper action of the moving fibres in every part of the body; and therefore that nature has provided for an absorption of oil to be made according as the action of the moving fibres may demand it. It will thus be obvious, that the exercise of the muscular and moving fibres every where, must occasion an absorption of oil; and, consequently, that such exercise not only prevents the secretion of oil, as has been already said, but may also cause a deficiency of it, by occasioning an absorption of what had been deposited; and in this way, perhaps especially, does it produce emaciation.

MDCXVI. A third case of the deficiency of oil may occur from the following cause: It is probable, that one purpose of the accumulation of oil in the cellular texture of animals, is, that it may, upon occasion, be again absorbed from thence, and carried into the mass of blood, for the purpose of enveloping and correcting any unusual acrimony arising and existing in the state of the fluids. Thus, in most instances in which we can discern an acrid state of the fluids, as in scurvy, cancer, syphilis, poisons, and several other diseases, we find at the same time a deficiency of oil and an emaciation take place; which, in my apprehension, must be attributed to the absorption of oil, which the presence of acrimony in the body excites.

It is not unlikely that certain poisons introduced into the body may subsist there, and giving occasion to an absorption of oil, may lay a foundation for the *Tabes a veneno*, Sauv. sp. 17.

MDCXVII. A fourth case of emaciation, and which I would attribute to a sudden and considerable absorption of oil from the cellular texture, is that of fever, which so generally produces emaciation. This may perhaps be in part attributed to the increased perspiration, and therefore to the general deficiency of fluids that may be supposed to take place: but whatever share that may have in producing the effect, we can, from the evident shrinking and diminution of the cellular substance, wherever it falls under our observation, certainly conclude, that there has been a very considerable absorption of the oil which had been before deposited in that substance. This explanation is rendered the more probable from this, that I suppose the absorption mentioned is necessarily made for the purpose of enveloping or correcting an acrimony, which manifestly does in many, and may be suspected to arise in all cases of fever. The most remarkable instance of emaciation occurring in fevers, is that which appears in the case of hectic fevers. Here the emaciation may be attributed to the profuse sweatings that commonly attend the disease; but there is much reason to believe that an acrimony also is present in the blood; which, even in the beginning of the disease, prevents the secretion and accumulation of oil, and in the more advanced states of it, must occasion a more considerable absorption of it; which, from the shrinking of the cellular substance, seems to go farther than in almost any other instance.

Upon the subject of emaciations from a deficiency of fluids, it may be observed, that every increased evacuation excites an absorption from other parts, and particularly from the cellular texture; and it is therefore probable, that a deficiency of fluids from increased evacuations, produces an emaciation, not only by the waste of the fluids in the vascular system, but also by occasioning a considerable absorption from the cellular texture.

MDCXVIII. I have thus endeavoured to explain the several cases and causes of emaciation; but I could not prosecute the consideration of these here in the order they are set down in the Methodical Nosology. In that work I was engaged chiefly in arranging the species of Sauvages; but it is my opinion now, that the arrangement there given is erroneous, in both combining and separating species improperly; and it seems to me more proper here to take notice of diseases, and put them together according to the affinity of their nature, rather than by that of their external appearances. I doubt if even the distinction of the Tabes and Atrophia, attempted in the Nosology, will properly apply; as I think there are certain diseases of the same nature, which sometimes appear with, and sometimes without, fever.

MDCXIX. After having considered the various cases of emaciations, I should perhaps treat of their cure; but it will readily appear that the greater part of the cases above mentioned are purely symptomatic, and consequently that the cure of them must be that of the primary diseases upon which they depend. Of those cases that can anywise be considered as idiopathic, it will appear that they are to be cured entirely by removing the remote causes; the means of accomplishing which must be sufficiently obvious.

BOOK II.

OF INTUMESCENTIÆ, OR GENERAL SWELLINGS.

MDCXX. The swellings to be treated of in this place, are those which extend over the whole or a great part of the body; or such at least, as, though of small extent, are however of the same nature with those that are more generally extended.

The swellings comprehended under this artificial order, are hardly to be distinguished from one another otherwise than by the matter they contain or consist of: and in this view I have divided the order into four sections, as the swelling happens to contain, 1st, oil; 2d, air; 3d, a watery fluid; or, 4th, as the increased bulk depends upon the enlargement of the whole substance of certain parts, and particularly of one or more of the abdominal viscera.

CHAP. I.—OF ADIPOSE SWELLINGS.

MDCXXI. The only disease to be mentioned in this chapter, I have, with other Nosologists, named *Polysarcia;* and in English it may be named Corpulency, or, more strictly, Obesity; as it is placed here upon the common supposition of its depending chiefly upon the increase of oil in the cellular texture of the body. This corpulency or obesity is in very different degrees in different persons, and is often considerable without being considered as a disease. There is, however, a certain degree of it, which will be generally allowed to be a disease; as, for example, when it renders persons, from a difficult respiration, uneasy in themselves, and, from the inability of exercise, unfit for discharging the duties of life to others: and for that reason I have given such a disease a place here. Many physicians have considered it as an object of practice, and as giving, even in no very high degree, a disposition to many diseases; I am of opinion that it should be an object of practice more frequently than it has been, and therefore that it merits our consideration here.

MDCXXII. It may perhaps be alleged, that I have not been sufficiently correct, in putting the disease of corpulency as an Intumescentia pinguedinosa, and therefore implying its being an increase of the bulk of the body from an accumulation of oil in the cellular texture only. I am aware of this objection: and as I have already said, that emaciation (MDCII.) depends either upon a general deficiency of fluids in the vascular system, or upon a deficiency of oil in the cellular texture; so I should perhaps have observed farther, that the corpulency, or general fulness of the body, may depend upon the fulness of the vascular system as well as upon that of the cellular texture. This is true, and for the same reasons I ought perhaps, after Linnæus and Sagar, to have set down plethora as a particular disease, and as an instance of morbid intumescence. I have however avoided this, as Sauvages and Vogel have done, because I apprehend that plethora is to be considered as a state of temperament only, which may indeed dispose to disease; but not as a disease in itself, unless, in the language of the Stahlians, it be a Plethora commota, when it produces a disease accompanied with particular symptoms, which give occasion to its being distinguished by a different appellation. Farther, it appears to me, that the symptoms which Linnæus, and more particularly those which Sagar employs in the character of plethora, never do occur but when the Intumescentia pinguedinosa has a great share in producing them. It is, however, necessary to observe here, that plethora and obesity are generally combined together; and that in some cases of corpulency it may be difficult to determine which of the causes has the greatest share in producing it. It is, indeed, very possible that a plethora may occur without great obesity; but I apprehend that obesity never happens to a considerable degree without producing a *plethora ad spatium* in a great part of the system of the aorta, and therefore a *plethora ad molem* in the lungs, and in the vessels of the brain.

MDCXXIII. In attempting the cure of polysarcia, I am of opinion that the conjunction of plethora and obesity, in the manner just now mentioned, should be constantly attended to; and when the morbid effects of the plethoric habit are threatened, either in the head or lungs, that blood-letting is to be practised: but at the same time it is to be observed, that persons of much obesity do not bear blood-letting well; and when the circumstances I have mentioned do not immediately require it, the practice upon account of obesity alone, is hardly ever to be employed. The same remark is to be made with respect to any other evacuations that may be proposed for the cure of corpulency: for without the other means I am to mention, they can give but a very imperfect relief; and, in so far as they either empty or weaken the system, they may favour the return of plethora, and the increase of obesity.

MDCXXIV. Polysarcia, or corpulency, whether it depend upon plethora or obesity, whenever it either can be considered as a disease, or threatens to induce one, is to be cured, or the effects of it are to be obviated, by diet and exercise. The diet must be sparing; or rather, what is more admissible, it must be such as affords little nutritious matter. It must therefore be chiefly, or almost only, of vegetable matter, and at the very utmost of milk. Such a diet should be employed, and generally ought to precede exercise; for obesity does not easily admit of bodily exercise, which is, however, the only mode that can be very effectual. Such, indeed, in many cases, may seem difficult to be admitted; but I am of opinion, that even the most corpulent may be brought to bear it, by at first attempting it very moderately, and increasing it by degrees very slowly, but at the same time persisting in such attempts with great constancy.

" There is always a way of introducing exercise: if the patient cannot walk twenty yards, he perhaps can walk ten, which, by repeating, he will soon increase to eleven and twelve, and so may be brought gradually to undergo any degree of exercise. It will be ridiculous if patients will not submit to this, and it must be left to their lot to be smothered in their own grease, or to fall victims to the other diseases to which they may be subjected."

MDCXXV. As these, though the only effectual measures, are often difficult to be admitted or carried into execution, some other means have been thought of and employed for reducing corpulency. These, if I mistake not, have all been certain methods of inducing a saline state in the mass of blood; for such I suppose to be the effects of vinegar and of soap, which have been proposed. The latter, I believe, hardly passes into the blood-vessels, without being resolved and formed into a neutral salt with the acid which it meets with in the stomach. How well acrid and saline substances are fitted to diminish obesity, may appear from what has been said above in MDCXVI. What effects vinegar, soap, or other substances employed, have had in reducing corpulency, there have not proper opportunities of observing occurred to me: but I am well persuaded, that the inducing a saline and acrid state of the blood, may have worse consequences than the corpulency it was intended to correct; and that no person should hazard these, while he may have recourse to the more safe and certain means of abstinence and exercise.

CHAP II.—OF FLATULENT SWELLINGS.

MDCXXVI. The cellular texture of the human body very readily admits of air, and allows the same to pass from any one to every other part of it. Hence Emphysemata have often appeared from air collected in the cellular texture under the skin, and in several other parts of the body. The flatulent swellings under the skin have indeed most commonly appeared in consequence of air immediately introduced from without: but in some instances of flatulent swellings, especially those of the internal parts not communicating with the alimentary canal, such an introduction cannot be perceived or supposed; and therefore, in these cases, some other cause of the production and collection of air must be looked for, though it is often not to be clearly ascertained.

In every solid as well as every fluid substance which makes a part of the human body, there is a considerable quantity of air in a fixed state, which may be again restored to its elastic state, and separated from those substances, by the power of heat, putrefaction, and perhaps other causes; but which of these may have produced the several instances of Pneumatosis and flatulent swellings that have been recorded by authors, I cannot pretend to ascertain. Indeed, upon account of these difficulties, I cannot proceed with any clearness on the general subject of pneumatosis; and, therefore, with regard to flatulent swellings, I find it necessary to confine myself to the consideration of those of the abdominal region alone; which I shall now treat of under the general name of Tympanites.

MDCXXVII. The tympanites is a swelling of the abdomen; in which the teguments appear to be much stretched by some distending power within, and equally stretched in every posture of the body. The swelling does not readily yield to any pressure; and in so far as it does, very quickly recovers its former state upon the pressure being removed. Being struck, it gives a sound like a drum, or other stretched animal membranes. No fluctuation within is to be perceived; and the whole feels less weighty than might be expected from its bulk. The uneasiness of the distention is commonly relieved by the discharge of air from the alimentary canal, either upwards or downwards.

MDCXXVIII. These are the characters by which the tympanites may be distinguished from the ascites or physconia; and many experiments show, that the tympanites always depends upon a preternatural collection of air, somewhere within the teguments of the abdomen: but the seat of the air is in different cases somewhat different; and this produces the different species of the disease.

One species is, when the air collected is entirely confined within the cavity of the alimentary canal, and chiefly in that of the intestines. This species, therefore, is named the *Tympanites intestinalis*, Sauv. sp. 1. It is, of all others, the most common; and to it especially belong the characters given above.

A second species is, when the air collected is not entirely confined to the cavity of the intestines, but is also present between their coats; and such is that which is named by Sauvages *Tympanites enterophysodes*, Sauv. sp. 3. This has certainly been a rare occurrence; and has probably occurred only in consequence of the *tympanites intestinalis*, by the air escaping from the cavity of the intestines into the interstices of the coats. It is, however, possible that an erosion of the internal coat of the intestines may give occasion to the air, so constantly present in their cavity, to escape into the interstices of their coats, though in the whole of their cavity there has been no previous accumulation.

A third species is, when the air is collected in the sac of the peritonæum, or what is commonly called the cavity of the abdomen, that is, the space between the peritonæum and viscera; and then the disease is named *Tympanites abdominalis*, Sauv. sp. 2. The existence of such a tympanites, without any *tympanites intestinalis*, has been disputed; and it certainly has been a rare occurrence: but, from several dissections, it is unquestionable that such a disease has sometimes truly occurred.

A fourth species of tympanites is, when the *tympanites intestinalis* and *abdominalis* are joined together, or take place at the same time. With respect to this, it is probable that the *tympanites intestinalis* is the primary disease, and the other only a consequence of the air escaping, by an erosion or rupture of the coats of the intestines, from the cavity of these into that of the abdomen. It is indeed possible, that, in consequence of erosion or rupture, the air which is so constantly present in the intestinal canal, may escape from thence in such quantity into the cavity of the abdomen, as to give a *tympanites abdominalis*, whilst there was no previous considerable accumulation of air in the intestinal cavity itself; but I have not facts to ascertain this matter properly.

A fifth species has also been enumerated. It is when a *tympanites abdominalis* happens to be joined with the *hydrops ascites*; and such a disease, therefore, is named by Sauvages *Tympanites asciticus*, Sauv. sp. 4. In most cases of tympanites, indeed, some quantity of serum has, upon dissection, been found in the sac of the peritonæum; but that is not enough to constitute the species now mentioned, and when the collection of serum is more considerable, it is commonly where, both from the causes which have preceded, and likewise from the symptoms which attend, the ascites may be considered as the primary disease; and therefore, that this combination does not exhibit a proper species of the tympanites.

MDCXXIX. As this last is not a proper species, and as some of the others are not only extremely rare, but even, when occurring, are neither primary, nor to be easily distinguished, nor, as considered in themselves, admitting of any cure, I shall here take no further notice of them, confining myself in what follows, to the consideration of the most frequent case, and almost the only object of practice, the *tympanites intestinalis.*

MDCXXX. With respect to this, I cannot perceive that it arises in any peculiar temperament, or depends upon any predisposition, which can be discerned. It occurs in either sex, at every age, and frequently in young persons.

MDCXXXI. Various remote causes of it have been assigned; but many of these have not commonly the effect of producing this disease; and although some of them have been truly antecedents of it, I can in few instances discover the manner in which they produce the disease, and therefore cannot certainly ascertain them to have been causes of it.

MDCXXXII. The phenomena of this disease in its several stages are the following:—

The tumour of the belly sometimes grows very quickly to a considerable degree, and seldom in the slow manner the ascites commonly comes on. In some cases, however, the tympanites comes on gradually, and is introduced by an unusual flatulency of the stomach and intestines, with frequent borborygmi, and an uncommonly frequent expulsion of air upwards and downwards. This state is also frequently attended with colic pains, especially felt about the navel, and upon the sides towards the back; but generally, as the disease advances, these pains become less considerable. As the disease advances, there is a pretty constant desire to discharge air, but it is accomplished with difficulty; and when obtained, although it gives some relief from the sense of distention, this relief is commonly transient and of short duration. While the disease is coming on, some inequality of tumour and tension may be perceived in different parts of the belly; but the distention soon becomes equal over the whole, and exhibits the phenomena mentioned in the character. Upon the first coming on of the disease, as well as during its progress, the belly is bound, and the fæces discharged are commonly hard and dry. The urine, at the beginning, is usually very little changed in quantity or quality from its natural state; but as the disease continues, it is commonly changed in both respects; and at length sometimes a strangury, and even an ischuria, comes on. The disease has seldom advanced far, before the appetite is much impaired, and digestion ill performed; and the whole body, except the belly, becomes considerably emaciated. Together with these symptoms, a thirst and uneasy sense of heat at length comes on, and a considerable frequency of pulse occurs, which continues throughout the course of the disease. When the tumour of the belly arises to a considerable bulk, the breathing becomes very difficult, with a frequent dry cough. With all these symptoms, the strength of the patient declines; and the febrile symptoms daily increasing, death at length ensues, sometimes probably in consequence of a gangrene coming upon the intestines.

MDCXXXIII. The tympanites is commonly of some duration, and to be reckoned a chronic disease. It is very seldom quickly fatal, except where such an affection suddenly arises in fevers. To this Sauvages has properly given a different appellation, that of *Meteorismus;* and I judge it may always be considered as a symptomatic affection, entirely distinct from the tympanites we are now considering.

MDCXXXIV. The tympanites is generally a fatal disease, seldom admitting of cure; but what may be attempted in this way, I shall try to point out, after I shall have endeavoured to explain the proximate cause, which alone can lay the foundation of what may be rationally attempted towards its cure.

MDCXXXV. To ascertain the proximate cause of tympanites, is somewhat difficult. It has been supposed in many cases, to be merely an uncommon quantity of air present in the alimentary canal, owing to the extrication and detachment of a greater quantity of air than usual from the alimentary matters taken in. Our vegetable aliments, I believe, always undergo some degree of fermentation; and, in consequence, a quantity of air is extricated and detached from them in the stomach and intestines; but it appears, that the mixture of the animal fluids which our aliments meet with in the alimentary canal, prevents the same quantity of air from being detached from them that would have been in their fermentation without such mixture; and it is probable that the same mixture contributes also to the re-absorption of the air that had been before in some measure detached. The extrication, therefore, of an unusual quantity of air from the aliments, may, in certain circumstances, be such, perhaps, as to produce a tympanites; so that this disease may depend upon a fault of the digestive fluids, whereby they are unfit to prevent the too copious extrication of air, and unfit also to occasion that re-absorption of air which in sound persons commonly happens. An unusual quantity of air in the alimentary canal, whether owing to the nature of the aliments taken in, or to the fault of the digestive fluid, does certainly sometimes take place; and may possibly have, and in some measure certainly has, a share in producing certain flatulent disorders of the alimentary canal; but cannot be supposed to produce the tympanites, which often occurs when no previous disorder had appeared in the system. Even in those cases of tympanites which are attended at their beginning with flatulent disorders in the whole of the alimentary canal, as we know that a firm tone of the intestines both moderates the extrication of air, and contributes to its re-absorption or ready expulsion, so the flatulent symptoms which happen to appear at the coming on of a tympanites, are, in my opinion, to be referred to the loss of tone in the muscular fibres of the intestines, rather than to any fault in the digestive fluids.

MDCXXXVI. These, and other considerations, lead me to conclude, that the chief part of the proximate cause of tympanites, is a loss of tone in the muscular fibres of the intestines. But further, as air of any kind accumulated in the cavity of the intestines should, even by its own elasticity, find its way either upwards or downwards, and should also, by the assistance of inspiration, be entirely thrown out of the body; so, when neither the re-absorption nor the expulsion takes place, and the air is accumulated so as to produce tympanites, it is probable that the passage of the air along the course of the intestines is in some places of these interrupted. This interruption, however, can hardly be supposed to proceed from any other cause than spasmodic constrictions in certain parts of the canal; and I conclude, therefore, that such constrictions concur as part in the proximate cause of tympanites. Whether these spasmodic constrictions are to be attributed to the remote cause of the disease, or may be considered as the consequence of some degree of atony first arising, I cannot with certainty, and do not find it necessary to determine.

MDCXXXVII. Having thus endeavoured to ascertain the proximate cause of tympanites, I proceed to treat of its cure; which indeed has seldom succeeded, and almost never but in a recent disease. I must, however, endeavour to say what may be reasonably attempted; what has commonly been attempted; and what attempts have sometimes succeeded in the cure of this disease.

MDCXXXVIII. It must be a first indication to evacuate the air accumulated in the intestines: and for this purpose it is necessary that those constrictions, which had especially occasioned its accumulation and continue to interrupt its passage along the course of the intestines, should be removed. As these, however, can hardly be removed but by exciting the peristaltic motion in the adjoining portions of the intestines, purgatives have been commonly employed; but it is at the same time agreed, that the more gentle laxatives only ought to be employed, as the more drastic, in the overstretched and tense state of the intestines, are in danger of bringing on inflammation.

It is for this reason, also, that glysters have been frequently employed; and they are the more necessary, as the fæces collected are generally found to be in a hard and dry state. Not only upon account of this state of the fæces, but farther, when glysters produce a considerable evacuation of air, and thus show that they have some effect in relaxing the spasms of the intestines, they ought to be repeated very frequently.

MDCXXXIX. In order to take off the constrictions of the intestines, and with some view also to the carminative effects of the medicines, various antispasmodics have been proposed, and commonly employed; but their effects are seldom considerable, and it is alleged, that their heating and inflammatory powers have sometimes been hurtful. It is, however, always proper to join some of the milder kinds with both the purgatives and glysters that are employed; and it has been very properly advised to give always the chief of antispasmodics, that is, an opiate, after the operation of purgatives is finished.

MDCXL. In consideration of the overstretched, tense, and dry state of the intestines, and especially of the spasmodic constrictions that prevail, fomentations and warm bathing have been proposed as a remedy; and are said to have been employed with advantage: but it has been remarked, that very warm baths have not been found so useful as tepid baths long continued.

MDCXLI. Upon the supposition that this disease depends especially upon an atony of the alimentary canal, tonic remedies seem to be properly indicated. Accordingly, chalybeates, and various bitters, have been employed; and, if any tonic, the Peruvian bark might probably be useful.

MDCXLII. But as no tonic remedy is more powerful than cold applied to the surface of the body, and cold drink thrown into the stomach, so such a remedy has been thought of in this disease. Cold drink has been constantly prescribed, and cold bathing has been employed with advantage; and there have been several instances of the disease being suddenly and entirely cured by the repeated application of snow to the lower belly.

MDCXLIII. It is hardly necessary to remark, that, in the diet of tympanitic persons, all sorts of food ready to become flatulent in the stomach are to be avoided; and it is probable, that the fossil acids and neutral salts, as antizymics, may be useful.

MDCXLIV. In obstinate and desperate cases of tympanites, the operation of the paracentesis has been proposed; but it is a very doubtful remedy, and there is hardly any testimony of its having been practised with success. It must be obvious, that this operation is a remedy suited especially, and almost only to the *tympanites abdominalis;* the existence of which, separately from the *intestinalis*, is very doubtful, at least not easily ascertained. Even if its existence could be ascertained, yet it is not very likely to be cured by this remedy; and how far the operation might be safe in the *tympanites intestinalis*, is not yet determined by any proper experience.

CHAP III.—OF WATERY SWELLINGS, OR DROPSIES.

MDCXLV. A preternatural collection of serous or watery fluids is often formed in different parts of the human body; and although the disease thence arising be distinguished according to the different parts which it occupies, yet the whole of such collections come under the general appellation of Dropsies. At the same time, although the particular instances of such collection are to be distinguished from each other according to the parts they occupy, as well as by other circumstances attending them, yet all of them seem to depend upon some general causes, very much in common to the whole. Before proceeding, therefore, to consider the several species, it may be proper to endeavour to assign the general causes of dropsy.

MDCXLVI. In persons in health, a serous or watery fluid seems to be constantly poured out, or exhaled in vapour, into every cavity and interstice of the human body capable of receiving it; and the same fluid, without remaining long or being accumulated in these spaces, seems constantly to be soon again absorbed from thence by vessels adapted to the purpose. From this view of the animal economy, it will be obvious, that if the quantity poured out into any space happens to be greater than the absorbents can at the same time take up, an unusual accumulation of serous fluid will be made in such parts; or though the quantity poured out be not more than usual, yet if the absorption be anywise interrupted or diminished, from this cause also an unusual collection of fluids may be occasioned. Thus, in general, dropsy may be imputed to an increased effusion, or to a diminished absorption; and I therefore proceed to inquire into the several causes of these.

MDCXLVII. An increased effusion may happen, either from a preternatural increase of the ordinary exhalation, or from the rupture of vessels carrying, or of sacs containing, serous or watery fluids.

MDCXLVIII. The ordinary exhalation may be increased by various causes, and particularly by an interruption given to the free return of the venous blood from the extreme vessels of the body to the right ventricle of the heart. This interruption seems to operate by resisting the free passage of the blood from the arteries into the veins, thereby increasing the force of the arterial fluids in the exhalents, and consequently the quantity of fluid which they pour out.

MDCXLIX. The interruption of the free return of the venous blood from the extreme vessels, may be owing to certain circumstances affecting the course of the venous blood; very frequently to certain conditions in the right ventricle of the heart itself, preventing it from receiving the usual quantity of blood from the vena cava; or to obstructions in the vessels of the lungs preventing the entire evacuation of the right ventricle, and thereby hindering its receiving the usual quantity of blood from the cava. Thus, a polypus in the right ventricle of the heart, and the ossification of its valves, as well as all considerable and permanent obstructions of the lungs, have been found to be causes of dropsy.

MDCL. It may serve as an illustration of the operation of these general causes, to remark, that the return of the venous blood is in some measure resisted when the posture of the body is such as gives occasion to the gravity of the blood to oppose the motion of it in the veins, which takes effect when the force of the circulation is weak; and from whence it is, that an upright posture of the body produces or increases serous swellings in the lower extremities.

MDLI. Not only those causes interrupting the motion of the venous blood more generally, but farther, the interruption of it in particular veins, may likewise have the effect of increasing exhalation, and producing dropsy. The most remarkable instance of this is, when considerable obstructions of the liver prevent the blood from flowing freely into it from the vena portarum and its numerous branches; and hence these obstructions are a frequent cause of dropsy.

MDLII. Scirrhosities of the spleen and other viscera, as well as the scirrhosity of the liver, have been considered as causes of dropsy; but the manner in which they can produce the disease I do not perceive, except it may be where they happen to be near some considerable vein, by the compression of which they may occasion some degree of ascites; or, by compressing the vena cava, may produce an anasarca of the lower extremities. It is indeed true, that scirrhosities of the spleen and other viscera have been frequently discovered in the bodies of hydropic persons; but I believe they have been seldom found unless when scirrhosities of the liver were also present; and I am inclined to think, that the former have been the effects of the latter, rather than the cause of the dropsy; or that, if scirrhosities of the other viscera have appeared in hydropic bodies when that of the liver was not present, they must have been the effects of some of those causes of dropsy to be hereafter mentioned; and consequently to be the accidental attendants, rather than the causes of such dropsies.

MDCLIII. Even in smaller portions of the venous system, the interruption of the motion of the blood in particular veins has had the same effect. Thus a polypus formed in the cavity of a vein, or tumours formed in its coats, preventing the free passage of the blood through it, have had the effect of producing dropsy in parts towards the extremity of such veins.

MDCLIV. But the cause most frequently interrupting the motion of the blood through the veins is, the compression of tumours existing near to them; such as aneurysms in the arteries, abscesses, and scirrhous or steatomatous tumours in the adjoining parts.

To this head may be referred the compression of the descending cava by the bulk of the uterus in pregnant women, and the compression of the same by the bulk of water in the ascites; both of which compressions frequently produce serous swellings in the lower extremities.

MDCLV. It may be supposed that a general preternatural plethora of the venous system may have the effect of increasing exhalation; and that this plethora may happen from the suppression of fluxes, or evacuations of blood, which had for some time taken place in the body, such as the menstrual and hæmorrhoidal fluxes. A dropsy, however, from such a cause, has been at least a rare occurrence; and when it seems to have happened, I should suppose it owing to the same causes as the suppression itself, rather than to the plethora produced by it.

MDCLVI. One of the most frequent causes of an increased exhalation, I apprehend to be the laxity of the exhalent vessels.

That such a cause may operate, appears probable from this, that paralytic limbs, in which such a laxity is to be suspected, are frequently affected with serous, or as they are called, œdematous swellings.

But a much more remarkable and frequent example of its operation occurs in the case of a general debility of the system, which is so often attended with dropsy. That a general debility does induce dropsy, appears sufficiently from its being so commonly the consequence of powerfully debilitating causes; such as fevers, either of the continued or intermittent kind, which have lasted long; long-continued and somewhat excessive evacuations of any kind; and, in short, almost all diseases that have been of long continuance, and have at the same time induced the other symptoms of a general debility.

Among other causes inducing a general debility of the system, and thereby dropsy, there is one to be mentioned as frequently occurring, and that is intemperance in the use of intoxicating liquors; from whence it is that drunkards of all kinds, and especially dram-drinkers, are so affected with this disease.

MDCLVII. That a general debility may produce a laxity of the exhalents, will be readily allowed; and that by this especially it occasions dropsy, I judge from thence, that while most of the causes already mentioned are suited to produce dropsies of particular parts only, the state of general debility gives rise to an increased exhalation into every cavity and interstice of the body, and therefore brings on a general disease. Thus, we have seen effusions of a serous fluid made, at the same time, into the cavity of the cranium, into that of the thorax and of the abdomen, and likewise into the cellular texture almost over the whole of the body. In such cases, the operation of a general cause discovered itself, by these several dropsies increasing in one part as they diminished in another, and this alternately in the different parts. This combination, therefore, of the different species of dropsy, or rather, as it may be termed, this universal dropsy, must, I think, be referred to a general cause; and, in most instances, hardly any other can be thought of, but a general laxity of the exhalents. It is this, therefore, that I call the *hydropic diathesis;* which frequently operates by itself; and frequently, in some measure, concurring with other causes, is especially that which gives them their full effect.

This state of the system, in its first appearance, seems to be what has been considered as a particular disease under the name of *Cachexy;* but in every instance of it that has occurred to me, I have always considered, and have always found, it to be the beginning of general dropsy.

MDCLVIII. The several causes of dropsy already mentioned, may produce the disease, although there be no preternatural abundance of serous or watery fluid in the blood-vessels; but it is now to be remarked, that a preternatural abundance of that kind may often give occasion to the disease, and more especially when such abundance concurs with the causes above enumerated.

One cause of such preternatural abundance may be an unusual quantity of water taken into the body. Thus, an unusual quantity of water taken in by drinking, has sometimes occasioned a dropsy. Large quantities of water, it is true, are upon many occasions taken in; and being as readily thrown out again by stool, urine, or perspiration, have not produced any disease. But it is also certain, that, upon some occasions, an unusual quantity of watery liquors taken in has run off by the several internal exhalents, and produced a dropsy. This seems to have happened, either from the excretories not being fitted to throw out the fluid so fast as it had been taken in, or from the excretories having been obstructed by accidentally concurring causes. Accordingly it is said, that the sudden taking in of a large quantity of very cold water has produced dropsy, probably from the cold producing a constriction of the excretories.

The proportion of watery fluid in the blood may be increased, not only by the taking in a large quantity of water by drinking, as now mentioned, but it is possible that it may be increased also by water taken in from the atmosphere by the skin in an absorbing or imbibing state. It is well known that the skin may be, at least, occasionally in such a state; and it is probable, that in many cases of beginning dropsy, when the circulation of the blood on the surface of the body is very languid, that the skin may be changed from a perspiring to an imbibing state; and thus, at least, the disease may be very much increased.

MDCLIX. A second cause of a preternatural abundance of watery fluids in the blood-vessels, may be an interruption of the ordinary watery excretions; and accordingly it is alleged, that persons much exposed to a cold and moist air are liable to dropsy. It is also said, that an interruption, or considerable diminution, of the urinary secretion has produced the disease: and it is certain, that in the case of an *ischuria renalis*, the serosity retained in the blood-vessels has been poured out into some internal cavities, and has occasioned dropsy.

MDCLX. A third cause, of an over-proportion of serous fluid in the blood ready to run off by the exhalents, has been very large evacuations of blood, either spontaneous or artificial. These evacuations, by abstracting a large proportion of red globules and gluten, which are the principal means of retaining serum in the red vessels, allow the serum to run off more readily by the exhalents; and hence dropsies have been frequently the consequence of such evacuations.

It is possible also, that large and long-continued issues, by abstracting a large proportion of gluten, may have the same effect.

An over-proportion of the serous parts of the blood may not only be owing to the *spoliation* just now mentioned, but may, I apprehend, be likewise owing to a fault in the digestion and assimilating powers in the stomach and other organs, whereby they do not prepare and convert the aliments taken in, in such a manner, as to produce from them the due proportion of red globules and gluten; but still continuing to supply the watery parts, occasion these to be in an over-proportion, and consequently ready to run off in too large quantity by the exhalents. It is in this manner that we explain the dropsy, so often attending chlorosis: which appears always at first by a pale colour of the whole body, showing a manifest deficiency of red blood; which in that disease can only be attributed to an imperfect digestion and assimilation.

Whether a like imperfection take places in what has been called a *Cachexy*, I dare not determine. This disease indeed has been commonly and very evidently owing to the general causes of debility above mentioned: and it being probable that the general debility may affect the organs of digestion and assimilation: so the imperfect state of these functions, occasioning a deficiency of red globules and gluten, may often concur with the laxity of the exhalents in producing dropsy.

MDCLXI. These are the several causes of increased exhalation, which I have mentioned as the chief cause of the effusion producing dropsy; but I have likewise observed in MDCXLVII. that with the same effect, an effusion may also be made by the rupture of vessels carrying watery fluids.

In this way a rupture of the thoracic duct, has given occasion to an effusion of chyle and lymph into the cavity of the thorax; and a rupture of the lacteals has occasioned a like effusion into the cavity of the abdomen: and in either case, a dropsy has been produced.

It is sufficiently probable, that a rupture of lymphatics, in consequence of strains, or the violent compression of neighbouring muscles, has occasioned an effusion; which being diffused in the cellular texture, has produced considerable dropsy.

It belongs to this head of causes, to remark, that there are many instances of a rupture or erosion of the kidneys, ureters, and bladder of urine; whereby the urine has been poured into the cavity of the abdomen, and produced an ascites.

MDCLXII. Upon this subject, of the rupture of vessels carrying, or of vesicles containing, watery fluids, I must observe, that the dissection of dead bodies has often shown vesicles formed upon the surface of many of the internal parts; and it has been supposed that the rupture of such vesicles, commonly named *Hydatides*, together with their continuing to pour out a watery fluid, has been frequently the cause of dropsy. I cannot deny the possibility of such a cause, but suspect the matter must be explained in a different manner.

There have been frequently found, in almost every different part of animal bodies, collections of spherical vesicles, containing a watery fluid; and in many cases of supposed dropsy, particularly in those called the preternatural encysted dropsies, the swelling has been entirely owing to a collection of such hydatides. Many conjectures have been formed with regard to the nature and production of these vesicles; but the matter at last seems to be ascertained. It seems to be certain, that each of these vesicles has within it, or annexed to it, a living animal of the worm kind; which seems to have the power of forming a vesicle for the purpose of its own economy, and of filling it with a watery fluid drawn from the neighbouring parts; and this animal has therefore been properly named by late naturalists, the *Tœnia hydatigena*. The origin and economy of this animal, or an account of the several parts of the human body which it occupies, I cannot prosecute further here; but it was proper for me, in delivering the causes of dropsy, to say thus much of hydatides; and I must conclude with observing, I am well persuaded, that most of the instances of preternatural encysted dropsies which have appeared in many different parts of the human body, have been truly collections of such hydatides; but how the swellings occasioned by these are to be distinguished from other species of dropsy, or how they are to be treated in practice, I cannot at present determine.

MDCLXIII. After having mentioned these, I return to consider the other general cause of dropsy, which I have said in MDCXLVI. may be, an interruption or diminution of the absorption that should take up the exhaled fluids from the several cavities and interstices of the body; the causes of which interruption, however, are not easily ascertained.

MDCLXIV. It seems probable, that absorption may be diminished, and even cease altogether, from a loss of tone in the absorbent extremities of the lymphatics. I cannot indeed doubt that a certain degree of tone or active power is necessary in these absorbent extremities; and it appears probable, that the same general debility which produces that laxity of the exhalent vessels, wherein I have supposed the hydropic diathesis to consist, will at the same time occasion a loss of tone in the absorbents; and therefore that a laxity of the exhalents will generally be accompanied with a loss of tone in the absorbents; and that this will have a share in the production of dropsy. Indeed it is probable that the diminution of absorption has a considerable share in the matter; as dropsies are often cured by medicines which seem to operate by exciting the action of the absorbents.

MDCLXV It has been supposed, that the absorption performed by the extremities of lymphatics may be interrupted by an obstruction of these vessels, or at least of the conglobate glands through which these vessels pass. This, however, is very doubtful. As the lymphatics have branches frequently communicating with one another, it is not probable that the obstruction of any one, or even several of these, can have any considerable effect in interrupting the absorption of their extremities.

And for the same reason, it is as little probable that the obstruction of conglobate glands can have such an effect: at least it is only an obstruction of the glands of the mesentery, through which so considerable a portion of the lymph passes, than can possibly have the effect of interrupting absorption. But even this we should not readily suppose, there being reason to believe that these glands, even in a considerably tumefied state, are not entirely obstructed: and, accordingly, I have known several instances of the most part of the mesenteric glands being considerably tumefied, without either interrupting the transmission of fluids to the blood-vessels, or occasioning any dropsy.

An hydropic swelling, indeed, seems often to affect the arm from a tumour of the axillary gland; but it seems to me doubtful, whether the tumour of the arm may not be owing to some compression of the axillary vein rather than to an obstruction of the lymphatics.

MDCLXVI. A particular interruption of absorption may be supposed to take place in the brain. As no lymphatic vessels have yet very certainly been discovered in that organ, it may be thought that the absorption, which certainly takes place there, is performed by the extremities of veins, or by vessels that carry the fluid directly into the veins; so that any impediment to the free motion of the blood in the veins of the brain, may interrupt the absorption there, and occasion that accumulation of serous fluid which so frequently occurs from a congestion of blood in these veins. But I give all this as a matter of conjecture only.

" *Prognosis of dropsy.* We determine whether a case be curable or incurable *a priori* from the consideration of its causes. Among incurable dropsies, we may rank, in the first place, the *hydrops hydatideus*: again of the cases more distinctly understood, those depending upon certain organic affections which, for ought we know, are incurable, such as a polypus of the heart, near the heart, or in the sinus of the brain; the several topical affections which I have hinted at in the heart and lungs; further, those which depend upon some affection of the vessels leading from the brain; all the dropsies depending on scirrhosities of the liver or any of the abdominal viscera, which have gone the length of producing the atony which has induced the dropsy; and more positively the dropsies of the lower belly from compression of the vena cava, from rupture of the lymphatics, or from small encysted dropsies. I would judge the same effect to arise from obstruction in the course of the lymphatics, such as in the mesentery. The causes being here incurable, the dropsies produced by them are so also.

"Other cases may be considered as ambiguous, as for instance, those depending on a relaxation of the exhalents. If this occurs to a considerable degree, the dropsy may be incurable. But when we find relaxation from temporary causes and without topical affection, we may often consider the disease as curable: and we hold the same language with regard to those cases which arise from great hæmorrhagies, or long continued evacuations of any kind; if these have not gone the length of weakening the assimulating powers, we may expect the crasis of the blood restored, and the dropsy cured.

"If, in the last place, this disease depends upon suppressed evacuations or some other diseases, which are only temporary, then we may suppose the dropsy to be removable like its cause.

"It is very necessary to attend to these distinctions in cases of dropsy, both with a view to the attempts which we may make in practice, and more frequently to excuse ourselves by a proper prognostic, and to prevent our judging rashly of medicines and their efficacy, when we happen to have employed them only in the incurable cases."

MDCLXVII. Having thus explained the general causes of dropsy, I should proceed, in the next place, to mention the several parts of the body in which serous collections take place, and so to mark the different species of dropsy; but I do not think it necessary for me to enter into any minute detail upon this subject. In many cases these collections are not to be ascertained by any external symptoms, and therefore cannot be the objects of practice; and many of them, though in some measure discernible, do not seem to be curable by our art. I the more especially avoid mentioning very particularly the several species, because that has already been sufficiently done by Dr. D. Monro, and other writers, in every body's hands. I must confine myself here to the consideration of those species which are the most frequently occurring and the most common objects of our practice; which are, the Anasarca, Hydrothorax, and Ascites; and each of these I shall treat of in so many separate sections.

SECT. I.—OF ANASARCA.

MDCLXVIII. The Anasarca is a swelling upon the surface of the body, at first commonly appearing in particular parts only, but at length frequently appearing over the whole. So far as it extends, it is an uniform swelling over the whole member, at first always soft, and readily receiving the pressure of the finger, which forms a hollow that remains for some little time after the pressure is removed, but at length rises again to its former fulness. This swelling generally appears, first, upon the lower extremities; and there too only in the evening, disappearing again in the morning. It is usually more considerable as the person has been more in an erect posture during the day; but there are many instances of the exercise of walking preventing altogether its otherwise usual coming on. Although this swelling appears at first only upon the feet and about the ankles; yet if the causes producing it continue to act, it gradually extends upwards, occupying the legs, thighs, and trunk of the body, and sometimes even the head. Commonly the swelling of the lower extremities diminishes during the night; and in the morning, the swelling of the face is most considerable, which again generally disappears almost entirely in the course of the day.

MDCLXIX. The terms of *Anasarca* and *Leucophlegmatia* have been commonly considered as synonimous; but some authors have proposed to consider them as denoting distinct diseases. The authors who are of this last opinion employ the name of *Anasarca* for that disease which begins in the lower extremities, and is from thence gradually extended upwards in the manner I have just now described; while they term *Leucophlegmatia*, that in which the same kind of swelling appears even at first very generally over the whole body. They seem to think also, that the two diseases proceed from different causes; and that, while the anasarca may arise from the several causes in MDCXLVIII.—MDCLIX. the leucophlegmatia proceeds especially from a deficiency of red blood, as we have mentioned in MDCLX. *et seq.* I cannot, however, find any proper foundation for this distinction. For although in dropsies proceeding from the causes mentioned in MDCLX. *et seq.* the disease appears in some cases more immediately affecting the whole body; yet that does not establish a difference from the common case of anasarca: for the disease, in all its circumstances, comes at length to be entirely the same; and in the cases occasioned by a deficiency of red blood, I have frequently observed it to come on exactly in the manner of anasarca, as above described.

MDCLXX. An *anasarca* is evidently a preternatural collection of serous fluid in the cellular texture immediately under the skin. Sometimes pervading the skin itself, it oozes out through the pores of the cuticle; and sometimes, too gross to pass by these, it raises the cuticle in blisters. Sometimes the skin, not allowing the water to pervade it, is compressed and hardened, and at the same time so much distended, as to give anasarcous tumours an unusual firmness. It is in these last circumstances also that an erythematic inflammation is ready to come upon anasarcous swellings.

MDCLXXI. An anasarca may immediately arise from any of the several causes of dropsy, which act more generally upon the system: and even when other species of dropsy, from particular circumstances, appear first; yet whenever these proceed from any causes more generally affecting the system, an anasarca sooner or later comes always to be joined with them.

MDCLXXII. The manner in which this disease commonly first appears, will be readily explained by what I have said in MDCL. respecting the effects of the posture of the body. Its gradual progress, and its affecting, after some time, not only the cellular texture under the skin, but probably also much of the same texture in the internal parts, will be understood partly from the communication that is readily made between the several parts of the cellular texture: but especially from the same general causes of the disease producing their effects in every part of the body. It appears to me, that the water of anasarcous swellings is more readily communicated to the cavity of the thorax, and to the lungs, than to the cavity of the abdomen, or to the viscera contained in it.

MDCLXXIII. An anasarca is almost always attended with a scarcity of urine; and the urine voided, is, from its scarcity, always of a high colour; and, from the same cause, after cooling, readily lets fall a copious reddish sediment. This scarcity of urine may sometimes be owing to an obstruction of the kidneys; but probably is generally occasioned by the watery parts of the blood running off into the cellular texture, and being thereby prevented from passing in the usual quantity to the kidneys.

The disease is also generally attended with an unusual degree of thirst; a circumstance I would attribute to a like abstraction of fluid from the tongue and fauces, which are extremely sensible to every diminution of the fluid in these parts.

MDCLXXIV. The cure of anasarca is to be attempted upon three general indications.

1. The removing the remote causes of the disease.
2. The evacuation of the serous fluid already collected in the cellular texture.
3. The restoring the tone of the system, the loss of which may be considered in many cases as the proximate cause of the disease.

MDCLXXV. The remote causes are very often such as had not only been applied, but had also been removed long before the disease came on. Although, therefore, their effects remain, the causes themselves cannot be the objects of practice; but if the causes still continue to be applied, such as intemperance, indolence, and some others, they must be removed. For the most part, the remote causes are certain diseases, previous to the dropsy, which are to be cured by the remedies particularly adapted to them, and cannot be treated of here. The curing of these, indeed, may be often difficult; but it was proper to lay down the present indication, in order to show, that when these remote causes cannot be removed, the cure of the dropsy must be difficult, or perhaps impossible. In many cases, therefore, the following indications will be to little purpose: and particularly, that often the execution of the second will not only give the patient a great deal of fruitless trouble, but commonly also hurry on his fate.

MDCLXXVI. The second indication for evacuating the collected serum, may be sometimes executed with advantage, and often, at least, with temporary relief. It may be performed in two ways. First, by drawing off the water directly from the dropsical part, by openings made into it for that purpose: or, secondly, by exciting certain serous excretions; in consequence of which, an absorption may be excited in the dropsical parts, and thereby the serum absorbed and carried into the blood-vessels, may afterwards be directed to run out, or may spontaneously pass out by one or other of the common excretions.

MDCLXXVII. In an anasarca, the openings into the dropsical part are commonly to be made in some part of the lower extremities; and will be most properly made by many small punctures reaching the cellular texture. Formerly, considerable incisions were employed for this purpose; but, as any wounds made in dropsical parts, which, in order to their healing, must necessarily inflame and suppurate, are liable to become gangrenous; so it is found to be much safer to make the openings by small punctures only, which may heal up by the first intention. At the same time, even with respect to these punctures, it is proper to observe, that they should be made at some distance from one another, and that care should be taken to avoid making them in the most depending parts.

MDCLXXVIII. The water of anasarcous limbs may be sometimes drawn off by pea-issues, made by caustic a little below the knees; for, as the great swelling of the lower extremities is chiefly occasioned by the serous fluid exhaled into the upper parts constantly falling down to the lower, so the issues now mentioned, by evacuating the water from these upper parts, may very much relieve the whole of the disease. Unless, however, the issues be put in before the disease is far advanced, and before the parts have very much lost their tone, the places of the issues are ready to become affected with gangrene.

Some practical writers have advised the employment of setons for the same purpose that I have proposed issues; but I apprehend, that setons will be more liable than issues to the accident just now mentioned.

MDCLXXIX. For the purpose of drawing out serum from anasarcous limbs, blisters have been applied to them, and sometimes with great success; but the blistered parts are ready to have a gangrene come upon them. Blistering is therefore to be employed with great caution; and perhaps only in the circumstances that I have mentioned above to be fit for the employment of issues.

MDCLXXX. Colewort-leaves applied to the skin, readily occasion a watery exudation from its surface; and applied to the feet and legs affected with anasarca, have sometimes drawn off the water very copiously, and with great advantage.

Analogous, as I judge, to this, oiled silk hose put upon the feet and legs, so as to shut out all communication with the external air, have been found sometimes to draw a quantity of water from the pores of the skin, and are said in this way to have relieved anasarcous swellings; but in several trials made, I have never found either the application of these hose, or that of the colewort-leaves, of much service.

MDCLXXXI. The second means proposed in MDCLXXVI. for drawing off the water from dropsical places, may be the employment of emetics, purgatives, diuretics, or sudorifics.

MDCLXXXII. As spontaneous vomiting has sometimes excited an absorption in hydropic parts, and thereby drawn off the waters lodged in them, it is reasonable to suppose that vomiting excited by art may have the same effect; and accordingly it has been often practised with advantage. The practice, however, requires that the strong antimonial emetics be employed, and that they be repeated frequently after short intervals.

MDCLXXXIII. Patients submit more readily to the use of purgatives than to that of emetics; and indeed they commonly bear the former more easily than the latter. At the same time, there are no means we can employ to procure a copious evacuation of serous fluids with greater certainty than the operation of purgatives, and it is upon these accounts that purging is the evacuation which has been most frequently, and perhaps with most success, employed in dropsy. It has been generally found necessary to employ purgatives of the more drastic kind; which are commonly known, and need not be enumerated here. I believe, indeed, that the more drastic purgatives are the most effectual for exciting absorption, as their stimulus is most readily communicated to the other parts of the system; but of late an opinion has prevailed, that some milder purgatives may be employed with advantage. This opinion has prevailed particularly with regard to the crystals vulgarly called the Cream of Tartar, which in large doses, frequently repeated, have sometimes answered the purpose of exciting large evacuations both by stool and urine, and have thereby cured dropsies. This medicine, however, has frequently failed, both in its operation and effects, when the drastic purgatives have been more successful.

Practitioners have long ago observed, that, in the employment of purgatives, it is requisite they be repeated after as short intervals as the patient can bear; probably for this reason, that when the purging is not carried to the degree of soon exciting an absorption, the evacuation weakens the system, and thereby increases the afflux of fluids to the hydropic parts.

"Gamboge is a powerful purgative, and has accordingly been long considered as a chief hydragogue. Observing that it was a purgative which passed though the intestines more quickly than almost any other, I have judged that moderate doses of it might be repeated soon after one another, with more safety, and with more effect, than by giving large doses at once. Accordingly, I have given doses of three or four grains, rubbed with a little sugar; and repeating these every three hours, I have found it operate without vomiting or griping: and at the same time, after three or four such exhibitions, a good deal of water was evacuated both by stool and urine. Although I have not yet had much experience of this management, I have no doubt of its being adapted to the cure of dropsy, with more ease to the patient than in any other manner of exhibiting it.—*M.M.*

MDCLXXXIV. The kidneys afford a natural outlet for a great part of the watery fluids contained in the blood-vessels; and the increasing the excretion by the kidneys to a considerable degree, is a means as likely as any other of exciting an absorption in dropsical parts. It is upon this account that diuretic medicines have been always properly employed in the cure of dropsy. The various diuretics that may be employed, are enumerated in every treatise of the Materia Medica and of the Practice of Physic, and therefore need not be repeated here. It happens, however, unluckily, that none of them are of very certain operation; neither is it well known why they sometimes succeed, and why they so often fail; nor why one medicine should prove of service when another does not. It has been generally the fault of writers upon the Practice of Physic, that they give us instances of cases in which certain medicines have proved very efficacious, but neglect to tell us in how many other instances the same have failed.

"The powers of *Digitalis* as a diuretic are now ascertained by numberless experiments; but upon what sort of operation these powers depend, I am at a loss to explain. Whether it be by a specific stimulus applied to the kidneys, or by a general operation upon the system, which particularly affects the kidneys, does not appear very clearly. The small dose in which the digitalis commonly operates, makes it difficult to suppose that so much of that dose can go to the kidneys as to be a considerable stimulus to these organs; and, on the other hand, the effects of that dose on the stomach and intestines, and especially its effect in diminishing the frequency of the pulse, are certain proofs of a general operation upon the system.

"I have introduced this speculation that some of my readers may prosecute the inquiry; but I do not take any pains at present to decide in the question, because I do not perceive that either opinion can have any influence upon practice. This, abstracted from all speculation, must be established by experience. With respect to this I could wish to lay down here rules for the proper management of this medicine; but I will not attempt it, because I can direct my reader to a more proper means of instruction by referring him to the treatise of my very ingenious and learned friend Dr. Withering on this subject, which is a treatise in many persons hands, and, in my opinion, should be in the hands of every practitioner of physic.

" I cannot however quit this subject of the digitalis without observing, that the speculation with regard to its operation, which I have started above, may occasion the general account of the operation of diuretics which I have given, to appear less complete; as, besides the increased quantity of water in the mass of blood, or a stimulus particularly applied to the kidneys, there may be a medicine which, by a general operation on the system, may promote the secretion of urine. My candour obliges me to mention this; but I do not find myself at present in a condition to prosecute the inquiry.

" *Scilla* is a root which from the most ancient times has been celebrated as a diuretic; and, under a proper management, it seldom fails to operate more or less as such. It has not however any specific power, as it seems to be universally stimulant with respect to every sensible part or excretory to which it is applied. It readily stimulates the stomach, and proves emetic, as we observed above. When it is so managed as to pass the stomach, it stimulates the intestines, and proves purgative; and when carried into the mass of blood, it is generally, and I believe justly, supposed to stimulate the mucous glands of the lungs, and to prove an expectorant.

" When it is thus so generally stimulant, we can readily understand why it should prove a diuretic; and I would add, that probably it has something in the nature of the acrimony it contains, that suits it to be taken up by the serosity, and thereby to pass readily by the kidneys, where its acrimony therefore increases the secretion.

" This actually happens, and has rendered it at all times noted as a diuretic.

" This effect, however, does not always happen; because, if it be thrown into the stomach in such quantity as to prove emetic or purgative, it is thereby prevented from reaching the blood-vessels and kidneys; and therefore, to obtain its diuretic effects, we must avoid its emetic and purgative operations, which may commonly be done by giving the squills in small doses, to be repeated after proper intervals only. And I have found, that by accompanying the squills with an opiate, the emetic and purgative operation of it may be avoided, and thereby it may be carried more entirely to the kidneys.

"A certain writer has alleged, that the diuretic effects of the squill are not to be expected unless it shows some operation on the stomach. This may perhaps be well founded; but I understand it no otherways, than that some operation on the stomach is a test, and a necessary test, of the squills being in an active state; in the same manner as we are only certain of the activity of mercurial preparations when they have shown some effect in the mouth.

"I have often observed, that when the squill operates strongly in the stomach and intestines, that the diuretic effects were less ready to happen; and therefore, as the squill contains an acrimony that is in part very volatile, and which is most ready to act on the stomach, that therefore the fresh squill, by acting more upon the stomach, is less certainly carried to the kidneys when their volatile part is in some measure dissipated.

"It is on this account that the dried squill is more frequently employed than the fresh. We must not however miss to observe here, that the drying of the squill is a business that requires much attention, as it may readily be overdone, and thereby render the squill entirely useless. And it is to be observed also, that the squill may not only be rendered inert by the first drying being too much, but that the dry powder, if kept long in a dry air, may also in time lose much of its power.

"This overdrying of the squill, in one way or other, happens more frequently than our apothecaries are aware of; and has led me to allow, that some operation on the stomach, some nausea excited by the squill, is a necessary test of the activity of the portion of it employed.

"When the squill is in good condition, to avoid its operation on the stomach and intestines, I have said it is proper to give it in small doses, to be repeated after long intervals only; but it is proper to observe here, that when the disease requires a repetition, the doses of the squill, as they are repeated, may be gradually increased, and the intervals of their exhibition made shorter; and when they come to be tolerably large, it is then that an opiate may be conveniently employed in directing the operation of the squill more certainly to the kidneys.

"In the cases of dropsy, that is, when there is an effusion of water into the cavities, and therefore that less water goes to the kidneys, we are of opinion that a neutral salt accompanying the squill may be of use in determining this more certainly to the kidneys; and whenever it can be perceived that it takes this course, we are persuaded that it will also be always useful, and generally safe, during the exhibition of the squills, to increase the usual quantity of drink.

"It may be a question, Whether the diuretic operation of squills may not be assisted by some mercurial preparation given at the same time? And when there is any appearance of the medicine going to the kidneys, it cannot be doubted that the mercury, as stimulant of every excretory to which it is applied, may here also be useful. Accordingly it has been a frequent practice to join mercury with squills; but I doubt much if the common practice of employing calomel on this occasion be proper. Calomel determines the squill more certainly to operate by stool; and unless the cure of the disease is to be trusted entirely to purging, the calomel may readily prevent the diuretic operation of the squill. We have therefore been of opinion, that the less purgative preparations of mercury were better suited to the purpose; and we are disposed to judge that the solution of the corrosive sublimate, which so often by itself goes to the kidneys, may be more proper than any other.

"All the *Alliaceæ* seem to contain an acrimony, which seems by its nature to be determined to pass off by the kidneys; and the species *Allium sativum* or *Garlic*, which possesses the largest portion of this acrimony, has been always celebrated as a diuretic.

"I have only to add here, that when it is taken into the stomach in its fresh and recent state, it almost always operates as a diuretic: and I am well persuaded, that in several instances of my practice it has contributed to the cure of dropsy; but I have not been so happy as Dr. Sydenham was, to find the disease cured by garlic alone.

"The infusion of *tobacco* has lately been recommended to us as a powerful diuretic of great service in dropsy. Upon the faith of these recommendations, we have now employed this remedy in various cases of dropsy, but with very little success. From the small doses that are proper to begin with, we have hardly observed any diuretic effects; and though from larger doses they have in some measure appeared, we have seldom found them considerable; and when to obtain these in a greater degree, we have gone on increasing the doses, we have been constantly restrained by the severe sickness at stomach, and even vomiting, which they occasioned: so that we have not yet learned the administration of this remedy so as to render it a certain or convenient remedy in any cases of dropsy.

" *Balsamica et Resinosa.*—With respect to the balsamica, as all of them have for their basis a turpentine, so it may be presumed that all the balsams may have the same diuretic quality which we find in the most simple turpentine. This we find to be commonly determined to the kidneys, operating there more or less as a diuretic; and therefore the general title of Balsamica is properly enough inserted in our catalogue. I must however observe with regard to them, that they cannot possibly be introduced into the body in such quantity as to operate powerfully in any diseases requiring a large discharge of urine.

" The diuretic substance afforded by turpentine, which has been the most taken notice of, is the essential oil obtained by a distillation with water. In attempting the cure of sciatica by this oil, I have frequently observed its passing by the kidneys, and promoting the secretion of urine; but it can never be introduced in such quantity as to be powerful in this way.

" This observation applies to the Oleum juniperi, which has been often employed as a diuretic; and it will readily appear, as this oil is drawn from the terebinthinate substance of the juniper, it can hardly have more power than that drawn from the turpentine itself.

" The *cantharides* taken internally, whether in substance or in solution, if in a certain quantity, may be considered as a stimulant and heating substance; and I have had occasion to know them, taken in large quantity as an aphrodisiac, to have excited violent pains in the stomach, and a feverish state over the whole body.

" The cantharides however seem to act only in a concentrated state; for taken in moderate quantity they are so much diffused in the fluids, both in the alimentary canal and in the mass of blood, that they seldom show any effects on the general system. But this seems to be almost peculiar to this substance, that, given even in moderate quantity, it very readily passes to the kidneys; and from circumstances which we cannot explain, it seems to be there united with a certain portion of the urine only; and being thus in a concentrated state when carried on to the bladder, it gives a considerable irritation and inflammation to the neck of it, in consequence of which a frequent stimulus to the voiding of urine, and a painful difficulty in the voiding of it; symptoms very well known to every medical man, under the title of Strangury, are produced.

"In explaining this very peculiar effect of cantharides I have insinuated a theory of their being united with a certain portion of the urine only, and of their being thereby in a more concentrated state, which will not perhaps appear clear to every body; but that there is a foundation for such reasoning appears to me very strongly from hence, that the effects mentioned are prevented by our rendering the urine more copious, and much diluted.

"It was proper for me to begin with an account of this frequent operation of the substance of cantharides; but it does not properly touch the medicinal powers of them, which I must therefore now speak of.

"From the effects mentioned, it is sufficiently evident that the substance of the cantharides goes to the kidneys; and it is with much probability supposed that such a stimulus applied there must promote the secretion of urine. This effect, however, does not always in fact appear; and Dr. Smyth Carmichael asserts, that in his frequent exhibitions of the tincture of cantharides, he never once observed the secretion of urine increased. In many instances of a strangury produced by the application or exhibition of cantharides, I have not found, though I have often inquired after it, the quantity of urine sensibly increased: and however it may be explained, though the substance of cantharides operates often upon the neck of the bladder, it may be doubted if at the same time it operates upon the kidneys; as, along with the strangury so often occurring, I have never met with pains of the back, or other marks of an affection of the kidneys.

"From these observations, it may be doubted if cantharides have properly any diuretic power; but the authority of the late eminent and learned Werlhof cannot be declined. In the *Commercium literarium Norimbergense*, Werlhof gives a remarkable instance of the diuretic power of cantharides, and informs us that he had frequently experienced the same in dropsy and other diseases; and upon such an authority I can no longer doubt of the power in question.

" It however may be considered, whether the obtaining the diuretic effects of cantharides may not depend upon that administration of them which Werlhof employed. He gave a grain of powdered cantharides for a dose, and repeated this every four hours; and it was only after the third dose, that a suppression of urine, of many days standing, began to yield: and I will give the rest of what relates to this subject in his own words, *Operum*, pag. 699. 'Post tertium granum fluere urina parum
' grumosa sanguinolenta, dein pituitosa, tandem limpida coepit,
' cum dysuria. Continuavi, quia symptomata cetera statim
' mitigata sunt, medicaminis usum, ad nonam usque dosin: quo
' facto magis magisque, et tandem largissime ad plures in dies
' mensuras, sine febre, dolore, prodiit urina limpida, imminutis
' symptomatis omnibus, sensimque sola ejus remedii ὑστερεργία
' convaluit homo, jamque sanus vivit.'

" By accidental circumstances I have myself been prevented from imitating this practice; and I was less intent upon it, because Wichmann, the editor of Werlhof's works, in a note on this subject, observes that Werlhof himself did not continue the use of cantharides in dropsy and other diseases.

" All this, however, I thought necessary to lay before my readers.

" With respect to the whole of the *Diuretic salts*, it is to be observed, in the first place, that as it seems to be determined by the nature of the animal economy, that all saline substances received into the mass of blood should soon pass out again by the excretions, and particularly by that of urine, it will be obvious that, as all saline matters are more or less stimulant, they must all of them, in passing by the kidneys, be more or less diuretic.

" Accordingly their power in this way is a matter of common experience; and all of them may be employed as diuretic medicines except the volatile alkali, which cannot be introduced in the quantity necessary to have much effect on the kidneys.

" The acids, in their concentrated state, cannot be admitted; but by being largely diluted with water, or watery liquors, they can be admitted in considerable quantity: and in this diluted state they sometimes prove powerful diuretics. The fossil acids, however, can hardly be admitted in such quantity as to produce any considerable discharge of urine; but the vegetable acid, in its various forms, can be taken in more largely, and prove very useful, particularly by rendering watery liquors more agreeable as drinks, and by conveying these more certainly to the kidneys, as explained above.

" The neutral salts, whether formed of acids and alkalines, or of acids and earths, are all of them diuretics in so far as they reach the kidneys; but many of them are at the same time laxative cathartics, and their operating by this quality commonly prevents their diuretic effects. These therefore can only be obtained by the exhibition of neutrals, when they are given in such small doses as cannot act upon the intestines, and when these doses are repeated at certain intervals only; but even in this way I could hardly ever render the diuretic effects of neutrals, even those of nitre, considerable.

" There is however a neutral salt that is judged to be more certainly diuretic than any other, and has therefore been entitled Sal Diureticus (Acetas Potassæ.). It is very possible that this salt may be more active in the kidneys than some others, and I think I have sometimes observed it to be so; but with respect to it in general, I must declare, that, though trying the exhibition of it in various ways, I could never render its diuretic effects remarkable, or fit to be depended upon, when a large discharge of urine was required.

" The crystals of tartar promote the secretion of urine sometimes very copiously. I have, however, been frequently disappointed of their diuretic effects; and it is proper to be remarked by practitioners, that they do not readily take their course to the kidneys, unless they are accompanied by a quantity of water, or watery fluids, thrown in at the same time; and therefore, as Dr. Home has taught us, they are most properly given in a liquid form.

"To conclude this subject, they are the fixed alkaline salts that have been especially depended upon as diuretics. It has been the vegetable fixed alkali only that I have employed, and have sometimes obtained its diuretic effects in a remarkable degree; but I have often also been disappointed of these; and I was not surprised at this, as I believe that the alkali is almost always rendered neutral in the stomach; and in that state they could have no other effect than that of other neutrals, which I have just now represented as commonly inconsiderable.

"It is, however, still a matter of fact, that alkalines do, upon occasion, show their diuretic power; and upon the supposition just now made of their neutral state in the stomach, their considerable operation as diuretics is not easily accounted for. On this subject, however, I shall offer two explanations. One is, that the quantity of alkali thrown into the stomach may be more than the acid there can neutralize; and, therefore, that some portion of it may reach the kidneys in its alkaline state, and prove there a more powerful stimulus than any neutral salt would be. It is upon this ground that I find a large quantity of alkali to be always necessary to show diuretic effects.

"Another explanation of the powers of alkali in producing these, is the following: As the acid of the stomach may be presumed to be of the nature of the fermented acid of vegetables, so an alkali joined with it must form a regenerated tartar, a sal diureticus, or kali acetatum; and if this be less purgative, and more diuretic than other neutrals, while it is also conveyed to the blood-vessels in larger quantity, we can understand why, from these circumstances, the fixed alkali may often appear diuretic. With respect to its operation as diuretic, I have another conjecture to offer. I have commonly found it prove diuretic when given with bitters, as was the manner of Sir John Pringle; and I have imagined that, as the bitters are absorbents of acid, they might absorb so much of that present in the stomach, as to prevent this from being so fully applied to the alkali.

"I have now only to add on this subject, that as alkalines may be often prevented, by purging, from reaching the kidneys; so their diuretic effect may be often more certainly secured by giving an opiate at the same time; and for the utility of this practice, See Dr. Mead on the subject of Dropsy.—*M.M.*

MDCLXXXV. It deserves to be particularly observed here, that there is hardly any diuretic more certainly powerful than a large quantity of common water taken in by drinking. I have indeed observed above in MDCLVIII., that a large quantity of water, or of watery liquors, taken in by drinking, has sometimes proved a cause of dropsy; and practitioners have been formerly so much afraid that watery liquors taken in by drinking might run off into dropsical places and increase the disease, that they have generally enjoined the abstaining, as much as possible, from such liquors. Nay, it has been further asserted, that by avoiding this supply of exhalation, and by a total abstinence from drink, dropsies have been entirely cured. What conclusion is to be drawn from these facts, is, however, very doubtful. A dropsy arising from a large quantity of liquids taken into the body has been a very rare occurrence; and there are, on the other hand, innumerable instances of very large quantities of water having been taken in, and running off again very quickly by stool and urine, without producing any degree of dropsy. With respect to the total abstinence from drink, it is a practice of the most difficult execution; and therefore has been so seldom practised, that we cannot possibly know how far it might prove effectual. The practice of giving drink very sparingly, has indeed been often employed; but in an hundred instances I have seen it carried to a great length, without any manifest advantage; while, on the contrary, the practice of giving drink very largely has been found not only safe, but very often effectual in curing the disease. The ingenious and learned Dr. Milman has, in my opinion, been commendably employed in restoring the practice of giving large quantities of watery liquors for the cure of dropsy. Not only from the instances he mentions from his own practice, and from that of several eminent physicians in other parts of Europe, but also from many instances in the records of physic, of the good effects of drinking large quantities of mineral waters in the cure of dropsy, I can have no doubt of the practice recommended by Dr. Milman being very often extremely proper. I apprehend it to be especially adapted to those cases in which the cure is chiefly attempted by diuretics. It is very probable that these medicines can hardly be carried in any quantity to the kidneys without being accompanied with a large portion of water; and the late frequent employment of the crystals of tartar has often shown, that the diuretic effects of that medicine are almost only remarkable when accompanied with a large quantity of water; and that without this, the diuretic effects of the medicine seldom appear.

" Even ardent spirits, if largely diluted and joined with a portion of vegetable acid, have been found to stimulate the kidneys, and to make a proper part of the ordinary drink. It was also an omission amongst the diuretics not to mention the milk of the non-ruminant animals, and of the other milks, their products of whey and butter-milk, especially when these are in their most acid states.

" To finish what relates to the giving of drink in dropsy, I must observe, that whenever we can perceive that the quantity of urine voided is equal to the quantity of drink for the same time taken in, I hold it to be safe to allow as much drink as the patient may desire; and have no doubt that, by such indulgence, the disease may be often entirely cured. There are indeed many instances of the disease being cured in this manner, as in the cases given by Sir George Baker in the Medical Transactions, in those quoted by Dr. Milman from several authors, and especially in the instances given by that ingenious author from his own practice.

" I can give none from mine; but one accidentally fell under my observation. A woman labouring under an anasarca was accidentally directed to drink a mineral water, and that in considerable quantity. By this her urine was greatly increased, and the anasarca was soon entirely cured.

" From my own practice I can observe, that I always thought it absurd in physicians to employ diuretics while they enjoined an abstinence from drink, which is almost the only means of conveying these diuretics to the kidneys: so whenever I employ diuretics, I at the same time advise drinking freely; and I am persuaded that drinking largely has often contributed to the cures I have made.—*M.M.*

I shall conclude this subject with observing, that as there are so many cases of dropsy absolutely incurable, the practice now under consideration may often fail, yet in most cases it may be safely tried; and if it appear that the water taken in passes readily by the urinary secretion, and especially that it increases the urine beyond the quantity of drink taken in, the practice may probably be continued with great advantage: but, on the contrary, if the urine be not increased, or be not even in proportion to the drink taken in, it may be concluded, that the water thrown in runs off by the exhalents, and will augment the disease.

MDCLXXXVI. Another set of remedies which may be employed for exciting a serous excretion, and thereby curing dropsy, is that of sudorifics. Such remedies, indeed, have been sometimes employed; but however useful they may have been thought, there are few accounts of their having effected a cure; and although I have had some examples of their success, in most instances of their trial they have been ineffectual.

Upon this subject it is proper to take notice of the several means that have been proposed and employed for dissipating the humidity of the body; and particularly that of heat externally applied to the surface of it. Of such applications I have had no experience: and their propriety and utility must rest upon the credit of the authors who relate them. I shall offer only this conjecture upon the subject: that if such measures have been truly useful, as it has seldom been by the drawing out of any sensible humidity, it has probably been by their restoring the perspiration, which is so often greatly diminished in this disease; or, perhaps, by changing the state of the skin, from the imbibing condition which is alleged to take place, into that of perspiring.

MDCLXXXVII. When by the several means now mentioned, we shall have succeeded in evacuating the water of dropsies, there will then especially be occasion for our third indication, which is, to restore the tone of the system, the loss of which is so often the cause of the disease. This indication, indeed, may properly have place from the very first appearance of the disease; and certain measures adapted to this purpose may, upon such first appearance, be employed with advantage.

In many cases of a moderate disease, I am persuaded that they may obviate any future increase of it.

MDCLXXXVIII. Thus, upon what is commonly the first symptom of anasarca, that is, upon the appearance of what are called Œdematous Swellings of the feet and legs, the three remedies of bandaging, friction, and exercise, have often been used with advantage.

MDCLXXXIX. That some degree of external compression is suited to support the tone of the vessels, and particularly to prevent the effects of the weight of the blood in dilating those of the lower extremities, must be sufficiently evident; and the giving that compression by a bandage properly applied, has been often useful. In applying such a bandage, care is to be taken that the compression may never be greater on the upper than on the lower part of the limb; and this, I think, can hardly ever be so certainly avoided, as by employing a properly constructed laced stocking.

MDCXC. Friction is another means by which the action of the blood-vessels may be promoted, and thereby the stagnation of fluids in their extremities prevented. Accordingly, the use of the flesh-brush has often contributed to discuss œdematous swellings. It appears to me that friction, for the purposes now mentioned, is more properly employed in the morning, when the swelling is very much gone off, than in the evening, when any considerable degree of it has already come on. I apprehend also, that friction being made from below upwards only, is more useful than when made alternately upwards and downwards. It has been common, instead of employing the flesh-brush, to make the friction by warm and dry flannels; and this may in some cases be the most convenient: but I cannot perceive that the impregnation of these flannels with certain dry fumes is of any benefit.

MDCXCI. With respect to exercise, I must observe, that although persons being much in an erect posture during the day, may seem to increase the swelling which comes on at night; yet as the action of the muscles has a great share in promoting the motion of the venous blood, so I am certain, that as much exercise in walking as the patient can easily bear, will often prevent that œdematous swelling which much standing, and even sitting, would have brought on.

MDCXCII. These measures, however, although they may be useful at the coming on of a dropsy, whose causes are not very powerful, will be often insufficient in a more violent disease; and such therefore will require more powerful remedies. These are, exercise and tonic medicines; which may be employed both during the course of the disease, and especially after the water has been evacuated.

MDCXCIII. Exercise is suited to assist in every function of the animal economy, particularly to promote perspiration, and thereby prevent the accumulation of watery fluids in the body. I apprehend also, that it may be the most effectual means for preventing the skin from being in an imbibing state; and, as it has been hinted above on the subject of emaciation (MDCVII.), I am persuaded, that a full and large perspiration will always be a means of exciting absorption in every part of the system. Exercise, therefore, promises to be highly useful in dropsy; and any mode of it may be employed that the patient can most conveniently admit of. It should, however, always be as much as he can easily bear: and in anasarca, the share which the exercise of muscles has in promoting the motion of the venous blood, induces me to think that bodily exercise, to whatever degree the patient can bear it, will always be the most useful. From some experience also, I am persuaded, that by exercise alone, employed early in the disease, many dropsies may be cured.

MDCXCIV. Besides exercise, various tonic remedies are properly employed to restore the tone of the system. The chief of these are, chalybeates, the Peruvian bark, and various bitters. These are not only suited to restore the tone of the system in general, but are particularly useful in strengthening the organs of digestion, which in dropsies are frequently very much weakened: and for the same purpose also aromatics may be frequently joined with the tonics.

MDCXCV. Cold bathing is upon many occasions the most powerful tonic we can employ; but at the beginning of dropsy, when the debility of the system is considerable, it can hardly be attempted with safety. After, however, the water of dropsies has been very fully evacuated, and the indication is to strengthen the system for preventing a relapse, cold bathing may perhaps have a place. It is, at the same time, to be admitted with caution; and can scarcely be employed till the system has otherwise recovered a good deal of vigour. When that indeed has happened, cold bathing may be very useful in confirming and completing it.

MDCXCVI. In persons recovering from dropsy, while the several means now mentioned for strengthening the system are employed, it will be proper at the same time to keep constantly in view the support of the watery excretions; and consequently the keeping up the perspiration by a great deal of exercise, and continuing the full flow of the urinary excretions by the frequent use of diuretics.

SECT. II.—OF THE HYDROTHORAX, OR DROPSY OF THE BREAST.

MDCXCVII. The preternatural collection of serous fluid in the thorox, to which we give the appellation of *Hydrothorax*, occurs more frequently than has been imagined. Its presence, however, is not always to be very certainly known; and it often takes place to a considerable degree before it be discovered.

MDCXCVIII. These collections of watery fluids in the thorax, are found in different situations. Very often the water is found at the same time in both sacs of the pleura, but frequently in one of them only. Sometimes it is found in the pericardium alone; but for the most part it only appears there when at the same time a collection is present in one or both cavities of the thorax. In some instances, the collection is found to be only in that cellular texture of the lungs which surrounds the bronchiæ, without there being at the same time any effusion into the cavity of the thorax.

Pretty frequently the water collected consists chiefly of a great number of hydatides in different situations; sometimes seemingly floating in the cavity, but frequently connected with and attached to particular parts of the internal surface of the pleura.

MDCXCIX. From the collection of water being thus in various situations and circumstances, symptoms arise which are different in different cases: and from thence it becomes often difficult to ascertain the presence and nature of the affection. I shall, however, endeavour here to point out the most common symptoms, and especially those of that principal and most frequent form of the disease, when the serous fluid is present in both sacs of the pleura, or, as we usually speak, in both cavities of the thorax.

MDCC. The disease frequently comes on with a sense of anxiety about the lower part of the sternum. This, before it has subsisted long, comes to be joined with some difficulty of breathing; which at first appears only upon the person's moving a little faster than usual, upon his walking up an acclivity, or upon his ascending a staircase: but after some time this difficulty of breathing becomes more constant and considerable, especially during the night, when the body is in a horizontal situation. Commonly, at the same time, lying upon one side is more easy than upon the other, or perhaps lying upon the back more easy than upon either side. These circumstances are usually attended with a frequent cough, that is at first dry, but which, after some time, is accompanied with an expectoration of thin mucus.

With all these symptoms, the hydrothorax is not certainly discovered, as the same symptoms often attend other diseases of the breast. When, however, along with these symptoms, there is at the same time an œdematous swelling of the feet and legs, a leucophlegmatic paleness of the face, and a scarcity of urine, the existence of a hydrothorax can be no longer doubtful. Some writers have told us, that sometimes in this disease, before the swelling of the feet comes on, a watery swelling of the scrotum appears: but I have never met with any instance of this.

MDCCI. Whilst the presence of the disease is somewhat uncertain, there is a symptom which sometimes takes place, and has been thought to be a certain characteristic of it; and that is, when soon after the patient has fallen asleep, he is suddenly awaked with a sense of anxiety and difficult breathing, and with a violent palpitation of the heart. These feelings immediately require an erect posture; and very often the difficulty of breathing continues to require and to prevent sleep for a great part of the night. This symptom I have frequently found attending the disease; but I have also met with several instances in which this symptom did not appear. I must remark further, that I have not found this symptom attending the empyema, or any other disease of the thorax; and therefore, when it attends a difficulty of breathing, accompanied with any the smallest symptom of dropsy, I have had no doubt in concluding the presence of water in the chest, and have always had my judgment confirmed by the symptoms which afterwards appeared.

MDCCII. The hydrothorax often occurs with very few, or almost none, of the symptoms above mentioned; and is not, therefore, very certainly discovered till some others appear. The most decisive symptom is a fluctuation of water in the chest, perceived by the patient himself, or by the physician, upon certain motions of the body. How far the method proposed by Auenbrugger will apply to ascertain the presence of water and the quantity of it in the chest, I have not had occasion or opportunity to observe.

It has been said, that in this disease some tumour appears upon the sides or upon the back; but I have not met with any instance of this. In one instance of the disease, I found one side of the thorax considerably enlarged, the ribs standing out farther on that side than upon the other.

A numbness and a degree of palsy in one or both arms, has been frequently observed to attend a hydrothorax.

Soon after this disease has made some progress, the pulse commonly becomes irregular, and frequently intermitting: but this happens in so many other diseases of the breast, that, unless when it is attended with some other of the above-mentioned symptoms, it cannot be considered as denoting the hydrothorax.

MDCCIII. This disease, as other dropsies, is commonly attended with thirst and a scarcity of urine, to be explained in the same manner as in the case of anasarca (MDCLXXIII.). The hydrothorax, however, is sometimes without thirst, or any other febrile symptom; although I believe this happens in the case of partial affections only, or when a more general affection is yet but in a slight degree. In both cases, however, and more especially when the disease is considerably advanced, some degree of fever is generally present: and I apprehend it to be in such case, that the persons affected are more than usually sensible to cold, and complain of the coldness of the air when that is not perceived by other persons.

MDCCIV. The hydrothorax sometimes appears alone, without any other species of dropsy being present at the same time: and in this case the disease, for the most part, is a partial affection, as being either of one side of the thorax only, or being a collection of hydatides in one part of the chest. The hydrothorax, however, is very often a part of more universal dropsy, and when at the same time there is water in all the three principal cavities, and in the cellular texture of a great part of the body. I have met with several instances in which such universal dropsy began first by an effusion into the thorax. The hydrothorax, however, more frequently comes on from an anasarca gradually increasing; and, as I have said above, the general diathesis seems often to affect the thorax sooner than it does either the head or the abdomen.

MDCCV. This disease seldom admits of a cure, or even of alleviation, from remedies. It commonly proceeds to give more and more difficulty of breathing, till the action of the lungs be entirely interrupted by the quantity of water effused; and the fatal event frequently happens more suddenly than was expected. In many of the instances of a fatal hydrothorax, I have remarked a spitting of blood to come on several days before the patient died.

MDCCVI. The cause of hydrothorax is often manifestly one or other of the general causes of dropsy pointed out above: but what it is that determines these general causes to act more especially in the thorax, and particularly what it is that produces the partial collections that occur there, I do not find to be easily ascertained.

MDCCVII. From what has been said above, it will be evident, that the cure of hydrothorax must be very much the same with that of anasarca; and when the former is joined with the latter, as an effect of the same general diathesis, there can be no doubt of the method of cure being the same in both. Even when the hydrothorax is alone, and the disease partial, from particular causes acting in the thorax only, there can hardly be any other measures employed than the general ones proposed above. There is only one particular measure adapted to the hydrothorax; and that is, the drawing off the accumulated waters by a paracentesis of the thorax.

MDCCVIII. To what cases this operation may be most properly adapted, I find it difficult to determine. That it may be executed with safety, there is no doubt; and that it has been sometimes practised with success, seems to be very well vouched. When the disease depends upon a general hydropic diathesis, it cannot alone prove a cure, but may give a temporary relief; and when other remedies seem to be employed with advantage, the drawing off the water may very much favour a complete cure. I have not, however been so fortunate as to see it practised with any success; and even where it was most promising, that is, in cases of partial affection, my expectations have been disappointed from it.

SECT. III.—OF ASCITES, OR DROPSY OF THE LOWER BELLY.

MDCCIX. The name of *Ascites* is given to every collection of waters causing a general swelling and distention of the lower belly; and such collections are more frequent than those which happen in the thorax.

MDCCX. The collections in the lower belly, like those of the thorax, are found in different situations. Most commonly they are in the sac of the peritonæum, or general cavity of the abdomen: but they often begin by sacs formed upon, and connected with, one or other of the viscera; and perhaps the most frequent instances of this kind occur in the ovaria of females. Sometimes the water of ascites is found entirely without the peritonæum, and between this and the abdominal muscles.

MDCCXI. These collections connected with particular viscera, and those formed without the peritonæum, form that disease which authors have termed the *encysted dropsy*, or *hydrops saccatus.* Their precise seat, and even their existence, is very often difficult to be ascertained. They are generally formed by collections of hydatides.

MDCCXII. In the most ordinary case, that of abdominal dropsy, the swelling at first is in some measure over the whole belly, but generally appears most considerable in the epigastrium. As the disease, however, advances, the swelling becomes more uniform over the whole. The distention and sense of weight, though considerable, vary a little, according as the posture of the body is changed; the weight being felt the most upon the side on which the patient lies, while at the same time on the opposite side the distention becomes somewhat less. In almost all the instances of ascites, the fluctuation of the water within may be perceived by the practitioner's feeling, and sometimes by his hearing. This perception of fluctuation does not certainly distinguish the different states of dropsy; but serves very well to distinguish dropsy from tympanites, from cases of physconia, and from the state of pregnancy in women.

MDCCXIII. An ascites frequently occurs when no other species of dropsy does at the same time appear; but sometimes the ascites is a part only of universal dropsy. In this case, it usually comes on in consequence of an anasarca, gradually increasing; but its being joined with anasarca, does not always denote any general diathesis, as for the most part an ascites sooner or later occasions œdematous swellings of the lower extremities. When the collection of water in the abdomen, from whatever cause, becomes considerable, it is always attended with a difficulty of breathing: but this symptom occurs often when, at the same time, there is no water in the thorax. The ascites is sometimes unaccompanied with any fever; but frequently there is more or less of fever present with it. The disease is never considerable without being attended with thirst and a scarcity of urine.

MDCCXIV. In the diagnosis of ascites, the greatest difficulty that occurs is in discerning when the water is in the cavity of the abdomen, or when it is in the different states of encysted dropsy above mentioned. There is, perhaps, no certain means of ascertaining this in all cases; but in many we may attempt to form some judgment with regard to it.

When the antecedent circumstances give suspicion of a general hydropic diathesis; when at the same time some degree of dropsy appears in other parts of the body; and when, from its first appearance, the swelling has been equally over the whole belly, we may generally presume that the water is in the cavity of the abdomen. But when an ascites has not been preceded by any remarkable cachectic state of the system, and when at its beginning the tumour and tension had appeared in one part of the belly more than another, there is reason to suspect an encysted dropsy. Even when the tension and tumour of the belly have become general and uniform over the whole; yet if the system of the body in general appear to be little affected; if the patient's strength be little impaired; if the appetite continue pretty entire, and the natural sleep be little interrupted; if the menses in females continue to flow as usual; if there be yet no anasarca; or, though it may have already taken place, if it be still confined to the lower extremities, and there be no leucophlegmatic paleness or sallow colour in the countenance; if there be no fever, nor so much thirst, or scarcity of urine, as occurs in a more general affection; then, according as more of these different circumstances take place, there will be the stronger ground for supposing the ascites to be of the encysted kind.

The chief exception to be made from this as a general rule, will, in my opinion, be when the ascites may, with much probability, be presumed to have come on in consequence of a scirrhous liver; which, I apprehend, may occasion a collection of water in the cavity of the abdomen, while the general system of the body may not be otherwise much affected.

MDCCXV. With respect to the cure of ascites when of the encysted kind, it does not, so far as I know, admit of any. When the collection of water is in the abdominal cavity alone, without any other species of dropsy present at the same time, I apprehend the ascites will always be of difficult cure; for it may be presumed to depend upon a scirrhosity of the liver, or other considerable affection of the abdominal viscera, which I conceive to be of very difficult cure, and therefore the ascites depending upon them. At the same time, such cases may often admit of a temporary relief by the paracentesis.

MDCCXVI. When the ascites is a part of universal dropsy, it may, as far as other cases of that kind can, admit of a cure; and it will be obvious, that such a cure must be obtained by the same means as above proposed for the cure of general anasarca.

It frequently happens, that the ascites is attended with a diarrhœa; and, in that case, does not admit of the use of purgatives so freely as cases of anasarca commonly do. It is therefore often to be treated by diuretics almost alone.

The diuretics that may be employed, are chiefly those above mentioned; but in ascites, a peculiar one has been found out. It is a long continued gentle friction of the skin over the whole of the abdomen, by the fingers dipped in oil. This has sometimes been useful in exciting an increased flow of urine; but in most of the trials of it which I have known made, it has failed in producing that effect.

MDCCXVII. The ascites admits of a particular means for immediately drawing off the collected waters; and that is the well-known operation of the paracentesis of the abdomen. In what circumstances of ascites this operation can most properly be proposed, it is difficult to determine; but, so far as I can judge, it must be regulated by very much the same considerations as those above mentioned with regard to the paracentesis of the thorax.

The manner of performing the paracentesis of the abdomen, and the precautions to be taken with respect to it, are now so commonly known, and delivered in so many books, that it is altogether unnecessary for me to offer any directions upon that subject here; especially after the full and judicious information and directions given by Mr. Bell, in the second volume of his *System of Surgery*.

CHAP. IV.—OF GENERAL SWELLINGS ARISING FROM AN INCREASED BULK OF THE WHOLE SUBSTANCE OF PARTICULAR PARTS.

MDCCXVIII. Upon the subjects of this chapter, several nosological difficulties occur, and particularly with respect to admitting the *Physconia* into the order of General Swellings. At present, however, it is not necessary for me to discuss this point, as I am here to omit entirely the consideration of Physconia; both because it can seldom admit of any successful practice, and because I cannot deliver any thing useful either with regard to the pathology or practice in such a disease.

MDCCXIX. The only other genus of disease comprehended under the title of the present chapter, is the Rachitis; and this being both a proper example of the class of *Cachexy*, and of the order of *Intumescentiæ* or General Swellings, I shall offer some observations with regard to it.

OF RACHITIS, OR RICKETS.

MDCCXX. This disease has been supposed to have appeared only in modern times, and not above two hundred years ago. This opinion, notwithstanding it has been maintained by persons of the most respectable authority, appears to me, from many considerations, improbable; but it is a point of too little consequence to detain my readers here. The only application of it which deserves any notice, is, that it has led to a notion of the disease having arisen from the lues venerea, which had certainly made its first appearance in Europe not very long before the date commonly assigned for the appearance of rachitis: but I shall hereafter shew, that the supposed connexion between the Syphilis and Rachitis is without foundation.

" It is commonly alleged that the rickets are a new disease, which first appeared in England in the sixteenth century. This to me is very improbable. It is true, we have no account of this affection in the writings of the ancient physicians, but we have sufficient marks of its existence in their time. Take notice only of certain appellations among the Romans, such as

Capitones, Frontones, Gibbosi, Tuberones, &c., taken from deformities, which, in the present age, are, in nine cases out of ten, the effects of rickets; and it may be presumed that the disease existed among the Romans, and is not new. I hardly know any instance of a new disease appearing in certain countries without a contagion, propagated accidentally or by a new commerce; but we know of nothing contagious in the nature of this disease.

"I have very little regard to the argument against the antiquity of the disease taken from the silence of physicians. I think we have very few writings on physic from the ancients which are complete: indeed they are in many respects imperfectly transmitted to us; and there is nothing more easy to prove than that innumerable circumstances have escaped the notice of former physicians, although we are sure of their existence in those times."

MDCCXXI. In delivering the history of the *Rickets*, I must, in the first place, observe, that with respect to the antecedents of the disease, every thing to be found in authors upon this subject, appears to me to rest upon a very uncertain foundation. In particular, with respect to the state of the parents whose offspring become affected with this disease, I have met with many instances of it in children from seemingly healthy parents; and have met likewise with many instances of children who never became affected with it, although born of parents who, according to the common accounts, should have produced a rickety offspring; so that, even making allowance for the uncertainty of fathers, I do not find the general opinion of authors upon this subject to be properly supported.

MDCCXXII. The disease, however, may be justly considered as proceeding from parents; for it often appears in a great number of the same family; and my observation leads me to judge, that it originates more frequently from mothers than from fathers. So far as I can refer the disease of the children to the state of the parents, it has appeared to me most commonly to arise from some weakness, and pretty frequently from a scrofulous habit in the mother. To conclude the subject I must remark, that in many cases I have not been able to discern the condition of the parents, to which I could refer it.

When nurses, other than the mothers, have been employed to suckle children, it has been supposed that such nurses have frequently given occasion to the disease; and when nurses have both produced and have suckled children who became rickety, there may be ground to suspect their having occasioned the disease in the children of other persons: but I have had few opportunities of ascertaining this matter. It has in some measure appeared to me, that those nurses are most likely to produce this disease, who give infants a large quantity of very watery milk, and who continue to suckle them longer than the usual time. Upon the whole, however, I am of opinion, that hired nurses seldom occasion this disease, unless when a predisposition to it has proceeded from the parents.

MDCCXXIII. With regard to the other antecedents, which have been usually enumerated by authors as the remote causes of this disease, I judge the accounts given to be extremely fallacious; and I am very much persuaded, that the circumstances in the rearing of children, have less effect in producing rickets than has been imagined. It is indeed not unlikely, that some of these circumstances mentioned as remote causes, may favour, while other circumstances may resist, the coming on of the disease; but at the same time, I doubt if any of the former would produce it where there was no predisposition in the child's original constitution. This opinion of the remote causes I have formed, from observing, that the disease comes on when none of these had been applied; and more frequently, that many of them had been applied without occasioning the disease. Thus, the learned Zeviani alleges, that the disease is produced by an acid from the milk with which a child is fed for the first nine months of its life: but almost all children are fed with the same food, and in which also an acid is always produced; while at the same time, not one in a thousand of the infants so fed becomes affected with the rickets. If, therefore, in the infants who become affected with this disease, a peculiarly noxious acid is produced, we must seek for some peculiar cause of its production, either in the quality of the milk, or in the constitution of the child; neither of which, however, Mr. Zeviani has explained. I cannot indeed believe that the ordinary acid of milk has any share in producing this disease, because I have known many instances of the acid being produced and occasioning various disorders, without, however, its ever producing rickets.

Another of the remote causes commonly assigned, is the child's being fed with unfermented farinaceous food. But over the whole world children are fed with such farinacea, while the disease of rickets is a rare occurrence; and I have known many instances where children have been fed with a greater than usual proportion of fermented farinacea, and also a greater proportion of animal food, without these preventing the disease. In my apprehension, the like observations might be made with respect to most of the circumstances that have been mentioned as the remote causes of rickets.

MDCCXXIV. Having thus offered my opinion concerning the supposed antecedents of this disease, I proceed now to mention the phenomena occurring after it has actually come on.

The disease seldom appears before the ninth month, and seldom begins after the second year, of a child's age. In the interval between these periods, the appearance of the disease is sometimes sooner, sometimes later; and commonly at first the disease comes on slowly. The first appearances are, a flaccidity of the flesh, the body at the same time becoming leaner, though food be taken in pretty largely. The head appears large with respect to the body; with the fontanelle, and perhaps the sutures, more open than usual in children of the same age. The head continues to grow larger, in particular, the forehead becoming unusually prominent; and at the same time, the neck continues slender, or seems to be more so, in proportion to the head. The dentition is slow, or much later than usual; and those teeth which come out, readily become black, and frequently again fall out. The ribs lose their convexity, and become flattened on the sides; while the sternum is pushed outward, and forms a sort of ridge. At the same time, or perhaps sooner, the epiphyses at the several joints of the limbs become swelled; while the limbs between the joints appear, or perhaps actually become more slender. The bones seem to be everywhere flexible, becoming variously distorted; and particularly the spine of the back becoming incurvated in different parts of its length. If the child, at the time the disease comes on, had acquired the power of walking, it becomes daily more feeble in its motions, and more averse to the exertion of them, losing at length the power of walking altogether. Whilst these symptoms go on increasing, the abdomen is always full, and preternaturally tumid. The appetite is often good, but the stools are generally frequent and loose. Sometimes the faculties of the mind are impaired, and stupidity or fatuity prevails; but commonly a premature sensibility appears, and they acquire the faculty of speech sooner than usual. At the first coming on of the disease, there is generally no fever attending it; but it seldom continues long, till a frequent pulse, and other febrile symptoms, come to be constantly present. With these symptoms the disease proceeds, and continues in some instances for some years; but very often, in the course of that time, the disease ceases to advance; and the health is entirely established, except that the distorted limbs, produced during the disease, continue for the rest of life. In other cases, however, the disease proceeds increasing, till it has affected almost every function of the animal economy, and at length terminates in death. The variety of symptoms which in such cases appear, it does not seem necessary to enumerate, as they are not essential to the constitution of the disease, but are merely consequences of the more violent conditions of it. In the bodies of those who have died, various morbid affections have been discovered in the internal parts. Most of the viscera of the abdomen have been found to be preternaturally enlarged. The lungs have also been found in a morbid state, seemingly from some inflammation that had come on towards the end of the disease. The brain has been commonly found in a flaccid state, with effusions of a serous fluid into its cavities. Very universally the bones have been found very soft, and so much softened as to be readily cut by a knife. The fluids have been always found in a dissolved state, and the muscular parts very soft and tender; and the whole of the dead body without any degree of that rigidity which is so common in almost all others.

MDCCXXV. From these circumstances of the disease, it seems to consist in a deficiency of that matter which should form the solid parts of the body. This especially appears in the faulty state of ossification, seemingly depending upon the deficiency of that matter which should be deposited in the membranes which are destined to become bony, and should give them their due firmness, and bony hardness. It appears that this matter is not supplied in due quantity; but that, in place of it, a matter fitted to increase their bulk, particularly in the epiphyses, is applied too largely. What this deficiency of matter depends upon, is difficult to be ascertained. It may be a fault in the organs of digestion and assimilation, which prevents the fluids in general from being properly prepared; or it may be a fault in the organs of nutrition, which prevents the secretion of a proper matter to be applied. With respect to the latter, in what it may consist, I am entirely ignorant, and cannot even discern that such a condition exists; but the former cause, both in its nature and existence, is more readily perceived; and it is probable that it has a considerable influence in the matter, as in rachitic persons, a thinner state of the blood, both during life and after death, so commonly appears. It is this state of the fluids, or a deficiency of bony matter in them, that I consider as the proximate cause of the disease; and which again may in some measure depend upon a general laxity and debility of the moving fibres of the organs that perform the functions of digestion and assimilation.

MDCCXXVI. There is, however, something still wanting to explain why these circumstances discover themselves at a particular time of life, and hardly ever either before or after a certain period; and as to this I would offer the following conjectures. Nature having intended that human life should proceed in a certain manner, and that certain functions should be exercised at a certain period of life only, so it has generally provided, that at that period, and not sooner, the body should be fitted for the exercise of the functions suited to it. To apply this to our present subject, Nature seems to have intended that children should walk at twelve months old; and accordingly has provided, that against that age, and no sooner, a matter should be prepared fit to give that firmness to the bones which is necessary to prevent their bending too easily under the weight of the body. Nature, however, is not always steady and exact in executing her own purposes; and if, therefore, the preparation of bony matter shall not have been made against the time there is particular occasion for it, the disease of rickets, that is, of soft and flexible bones, must come on; and will discover itself about the particular period we have mentioned. Further, it will be equally probable, that if at the period mentioned the bones shall have acquired their due firmness, and that nature goes on in preparing and supplying the proper bony matter, it may be presumed, that against the time a child is two years old, such a quantity of bony matter will be applied as to prevent the bones from becoming again soft and flexible during the rest of life; unless it happen, as indeed it sometimes does, that certain causes occur to wash out again the bony matter from the membranes in which it had been deposited. The account I have now given of the period at which the rickets occur, seems to confirm the opinion of its proximate cause being a deficiency of bony matter in the fluids of the body.

MDCCXXVII. It has been frequently supposed, that a syphilitic taint has a share in producing rickets; but such a supposition is altogether improbable. If our opinion of the rickets having existed in Europe before the syphilis was brought into it, be well-founded, it will then be certain that the disease may be occasioned without any syphilitic acrimony having a share in its production. But further, when a syphilitic acrimony is transmitted from the parent to the offspring, the symptoms do not appear at a particular time of life only, and commonly more early than the period of rickets: the symptoms also are very different from those of rickets, and unaccompanied with any appearance of the latter: and, lastly, the symptoms of syphilis are cured by means, which in the case of rickets have either no effect, or a bad one. It may indeed possibly happen, that syphilis and rickets may appear in the same person; but it is to be considered as an accidental complication: and the very few instances of it that have occurred, are by no means sufficient to establish any necessary connexion between the two diseases.

MDCCXXVIII. With respect to the deficiency of bony matter, which I consider as the proximate cause of rickets, some further conjectures might be offered concerning its remote causes; but none of them appear to me very satisfying; and whatever they might be, it appears to me they must again be resolved into the supposition of a general laxity and debility of the system.

MDCCXXIX. It is upon this supposition almost alone that the cure of rickets has entirely proceeded. The remedies have been such especially as were suited to improve the tone of the system in general, or of the stomach in particular; and we know that the latter are not only suited to improve the tone of the stomach itself, but by that means to improve also the tone of the whole system.

MDCCXXX. Of tonic remedies, one of the most promising seems to have been cold bathing; and I have found it the most powerful in preventing the disease. For a long time past, it has been the practice in this country, with people of all ranks, to wash their children from the time of their birth with cold water, and from the time that children are a month old, it has been the practice with people of better rank to have them dipped entirely in cold water every morning; and wherever this practice has been pursued, I have not met with any instance of rickets. Amongst our common people, although they wash their children with cold water only, yet they do not so commonly practise immersion: and when amongst these I meet with instances of rickets, I prescribe cold bathing; which accordingly has often checked the progress of the disease, and sometimes seems to have cured it entirely.

MDCCXXXI. The remedy of *Ens Veneris*, recommended by Mr. Boyle, and since his time very universally employed, is to be considered as entirely a tonic remedy. That or some other preparation of iron I have almost constantly employed, though not indeed always with success. I have been persuaded that the Ens Veneris of Mr. Boyle, notwithstanding his giving it this appellation, was truly a preparation of iron, and no other than what we now name the *Flores Martiales*: but it appears, that both Benevoli and Buchner have employed a preparation of copper; and I am ready to believe it to be a more powerful tonic than the preparations of iron.

MDCCXXXII. Upon the supposition of tonic remedies being proper in this disease, I have endeavoured to employ the Peruvian bark; but from the difficulty of administering it to infants in any useful quantity, I have not been able to discover its efficacy; but I am very ready to believe the testimony of De Haen upon this subject.

"In all the instances I have seen, and they are not a few, of the use of the bark in rickets and scrofula, I have never seen clearly any benefit derived from them.—*M.M.*

MDCCXXXIII. Exercise, which is one of the most powerful tonics, has been properly recommended for the cure of rickets; and as the exercise of gestation only can be employed, it should always be with the child laid in a horizontal situation; as the carrying them or moving them in any degree of an erect posture, is very apt to occasion some distortion. It is extremely probable, that, in this disease, friction with dry flannels may be found an useful remedy.

MDCCXXXIV. It is also sufficiently probable, that the avoiding of moisture is not only advisable, but may likewise be of service in the cure of this disease.

There is no doubt that a certain diet may contribute to the same end; but what may be the most eligible, I dare not determine. I have no doubt that leavened bread may be more proper than unfermented farinacea; but I cannot find any reason to believe that strong beer can ever be a proper remedy.

Practitioners have been divided in opinion concerning the use of milk in this disease. Zeviani, perhaps from theory, condemns the use of it: but Benevoli employed it without its impeding the cure of the disease. This last I have often remarked in the course of my own practice. As it is difficult to feed children entirely without milk, so I have commonly admitted it as a part of the diet of rickety children; and in many instances I can affirm, that it did not prevent the cure of the disease. In cases, however, of any appearance of rickets, and particularly of a slow dentition, I have dissuaded the continuance of a child upon the breast; because the milk of women is a more watery nourishment than that of cows; and I have especially dissuaded the continuing a child upon the breast, when I thought the nurse gave rather too much of such a watery nourishment; for, as has been above mentioned, I have had frequent occasion to suspect that the milk of such nurses has a tendency to favour the coming on of rickets.

MDCCXXXV. Besides the remedies and regimen now mentioned, practitioners have commonly employed in this disease both emetics and purgatives. When the appetite and digestion are considerably impaired, vomiting, if neither violent nor frequently repeated, seems to be of service; and, by a moderate agitation of the abdominal viscera, may in some measure obviate the stagnation and consequent swelling that usually occur in them.

As the tumid state of the abdomen, so constantly to be met with in this disease, seems to depend very much upon a tympanitic affection of the intestines; so, both by obviating this, and by deriving from the abdominal viscera, frequent gentle purgatives may be of service. Zeviani, perhaps properly, recommends in particular rhubarb; which, besides its purgative quality, has those also of bitter and astringent.

MDCCXXXVI. I have now mentioned most of the remedies commonly employed by the practitioners of former times; but I must not omit mentioning some others that have been lately suggested. The late Mr. De Haen recommends the testacea; and assures us of their having been employed with success; but in the few trials which I have had occasion to make, their good effects did not appear.

The late Baron Van Swieten gives us one instance of rickets cured by the use of hemlock; but I do not know that the practice has been repeated.

BOOK III.

OF THE IMPETIGINES, OR DEPRAVED HABIT WITH AFFECTIONS OF THE SKIN.

MDCCXXXVII. I find it difficult to give any sufficiently correct and proper character of this order The diseases comprehended under it, depend, for the most part, upon a depraved state of the whole of the fluids, producing tumours, eruptions, or other preternatural affections of the skin. Although it be extremely difficult to find a general character of the order that will apply to each of the genera and species, I shall here treat of the principal genera which have been commonly comprehended under this order, and which I have enumerated in my Nosology.

CHAP. I.—OF SCROFULA, OR THE KING'S EVIL.

MDCCXXXVIII. The character of this disease I have attempted in my Nosology; but it will be more properly taken from the whole of its history, now to be delivered.

MDCCXXXIX. It is commonly, and very generally, a hereditary disease; and although it sometimes may, yet it rarely appears, but in children whose parents had at some period of their lives been affected with it. Whether it may not fail to appear in the children of scrofulous parents, and discover itself afterwards in their offspring in the succeeding generations, I cannot certainly determine; but believe that this has frequently happened. It appears to me to be derived more commonly from fathers than from mothers; but whether this happens from their being more scrofulous men than scrofulous women married, I am not certain.

With respect to the influence of parents in producing this disease, it deserves to be remarked, that in a family of many children, when one of the parents has been affected with scrofula, and the other not; as it is usual for some of the children to be in constitution pretty exactly like the one parent, and others of them like the other; it commonly happens, that those children who most resemble the scrofulous parent become affected with scrofula, while those resembling the other parent entirely escape.

MDCCXL. The scrofula generally appears at a particular period of life. It seldom appears in the first, or even in the second year of a child's life; and most commonly it occurs from the second, or, as some allege, and perhaps more properly, from the third to the seventh year. Frequently, however, it discovers itself at a later period; and there are instances of its first appearance at every period till the age of puberty; after which, however, the first appearance of it is very rare.

MDCCXLI. When it does not occur very early, we can generally distinguish the habit of body peculiarly disposed to it. It most commonly affects children of soft and flaccid habits, of fair hair and blue eyes; or at least affects these much more frequently than those of an opposite complexion. It affects especially children of smooth skins and rosy cheeks; and such children have frequently a tumid upper lip, with a chop in the middle of it; and this tumour is often considerable, and extended to the columna nasi and lower part of the nostrils. The disease is sometimes joined with, or follows rickets; and although it frequently appears in children who have not had rickets in any great degree, yet it often attacks those who, by a protuberant forehead, by tumid joints, and a tumid abdomen, show that they had some rachitic disposition. In parents who, without having had the disease themselves, seem to produce scrofulous children, we can commonly perceive much of the same habit and constitution that has been just now described.

Some authors have supposed, that the smallpox has a tendency to produce this disease; and Mr. De Haen asserts its following the inoculated, more frequently than the natural, smallpox. This last position, however, we can confidently affirm to be a mistake; although it must be allowed, that in fact the scrofula does often come on immediately after the smallpox. It is, however, difficult to find any connexion between the two diseases. According to my observation, the accident only happens in children who have pretty manifestly the scrofulous disposition; and I have had several instances of the natural smallpox coming upon children affected at the same time with scrofula, not only without this disease being anyways aggravated by the smallpox, but even of its being for some time after much relieved.

MDCCXLII. The scrofula generally shows itself first at a particular season of the year; and at some time between the winter and summer solstice; but commonly long before the latter period. It is to be observed further, that the course of the disease is usually connected with the course of the seasons. Whilst the tumours and ulcerations, peculiar to this disease, appear first in the spring, the ulcers are frequently healed up in the course of the succeeding summer, and do not break out again till the ensuing spring, to follow again with the season the same course as before.

MDCCXLIII. Frequently the first appearance of the disease is the tumid and chopped lip above mentioned. Upon other occasions, the first appearance is that of small spherical or oval tumours, moveable under the skin. They are soft, but with some elasticity. They are without pain; and without any change in the colour of the skin. In this state they often continue for a long time; even for a year or two, and sometimes longer. Most commonly they first appear upon the sides of the neck below the ears; but sometimes also under the chin. In either case, they are supposed to affect in these places the conglobate or lymphatic glands only; and not at all the salivary glands, till the disease is very greatly advanced. The disease frequently affects, and even at first appears in, other parts of the body. In particular, it affects the joints of the elbows and ankles, or those of the fingers and toes. The appearances about the joints are not commonly, as elsewhere, small moveable swellings; but a tumour almost uniformly surrounding the joint, and interrupting its motion.

MDCCXLIV. These tumours, as I have said, remain for some time little changed; and, from the time they first appeared in the spring, they often continue in this way till the return of the same season in the next or perhaps the second year after. About that time, however, or perhaps in the course of the season in which they first appear, the tumour becomes larger and more fixed; the skin upon it acquires a purple, seldom a clear redness: but growing redder by degrees, the tumour becomes softer, and allows the fluctuation of a liquid within to be perceived. All this process, however, takes place with very little pain attending it. At length some part of the skin becomes paler; and by one or more small apertures a liquid is poured out.

MDCCXLV. The matter poured out has at first the appearance of pus, but it is usually of a thinner kind than that from phlegmonic abscesses; and the matter, as it continues to be discharged, becomes daily less purulent, and appears more and more a viscid serum, intermixed with small pieces of a white substance resembling the curd of milk. By degrees the tumour almost entirely subsides, while the ulcer opens more, and spreads broader, unequally, however, in different directions, and therefore is without any regular circumscription. The edges of the ulcer are commonly flat and smooth, both on their outside and their inner edge, which seldom puts on a callous appearance. The ulcers, however, do not generally spread much, or become deeper; but at the same time their edges do not advance, or put on any appearance of forming a cicatrix.

" In the case of scrofulous tumours, we find sometimes a suppuration which is of the ordinary kind, and this we may refer to the cellular texture surrounding the conglobate glands: but for the most part, where there is an effusion, we find a white caseous matter in some sac, which must be referred to the particular nature of the part there; and in how many different parts this peculiar appearance may be produced, or how much the appearance may be affected by the particular state of the part, we cannot say."

MDCCXLVI. In this condition the ulcers often continue for a long time; while new tumours, with ulcers succeeding them in the manner above described, make their appearance in different parts of the body. Of the first ulcers, however, some heal up, while other tumours and ulcers appear in their vicinity, or in other parts of the body: and in this manner the disease proceeds, some of the ulcers healing up, at least to a certain degree, in the course of summer, and breaking out in the succeeding spring: or it continues, by new tumours and ulcers succeeding them, in the spring season, making their appearance successively for several years.

MDCCXLVII. In this way the disease goes on for several years; but very commonly in four or five years it is spontaneously cured, the former ulcers being healed up, and no new tumours appearing: and thus at length the disease ceases entirely, leaving only some indelible eschars, pale and smooth, but in some parts shrivelled; or, where it had occupied the joints, leaving the motion of these impaired, or entirely destroyed.

MDCCXLVIII. Such is the most favourable course of this disease; and with us it is more frequently such than otherwise; but it is often a more violent, and sometimes a fatal malady. In these cases, more parts of the body are at the same time affected; the ulcers also seeming to be imbued with a peculiarly sharp acrimony, and therefore becoming more deep, eroding, spreading, as well as seldomer healing up. In such cases, the eyes are often particularly affected. The edges of the eyelids are affected with tumour and superficial ulcerations; and these commonly excite obstinate inflammation in the adnata, which frequently produces an opacity of the cornea.

When the scrofula especially affects the joints, it sometimes produces there considerable tumours; in the abscesses following which, the ligaments and cartilages are eroded, and the adjoining bones are affected with a caries of a peculiar kind. In these cases, also, of more violent scrofula, while every year produces a number of new tumours and ulcers, their acrimony seems at length to taint the whole fluids of the body, occasioning various disorders; and particularly a hectic fever, with all its symptoms, which at length proves fatal, with sometimes the symptoms of a phthisis pulmonalis.

MDCCXLIX. The bodies of persons who have died of this disease show many of the viscera in a very morbid state; and particularly most of the glands of the mesentery very much tumefied, and frequently in an ulcerated state. Commonly also a great number of tubercles or cysts, containing matter of various kinds, appear in the lungs.

MDCCL. Such is the history of the disease; and from thence it may appear, that the nature of it is not easily to be ascertained. It seems to be a peculiar affection of the lymphatic system; and this in some measure accounts for its connexion with a particular period of life. Probably, however, there is a peculiar acrimony of the fluids that is the proximate cause of the disease; although of what nature this is has not yet been discovered. It may perhaps be generally diffused in the system, and exhaled into the several cavities and cellular texture of the body; and therefore, being taken up by the absorbents, may discover itself especially in the lymphatic system. This, however, will hardly account for its being more confined to that system than happens in the case of many other acrimonies which may be supposed to be as generally diffused. In short, its appearance in particular constitutions, and at a particular period of life, and even its being a hereditary disease, which so frequently depends upon the transmission of a peculiar constitution, are all of them circumstances which lead me to conclude, upon the whole, that this disease depends upon a *peculiar constitution of the lymphatic system.*

MDCCLI. It seems proper to observe here, that the scrofula does not appear to be a contagious disease; at least I have known many instances of sound children having had frequent and close intercourse with scrofulous children without being infected with the disease. This certainly shows, that in this disease the peculiar acrimony of it is not exhaled from the surface of the body, but that it depends especially upon a peculiar constitution of the system.

MDCCLII. Several authors have supposed the scrofula to have been derived from the venereal disease: but upon no just grounds that I can perceive. In very many instances, there can hardly be any suspicion of the parents producing this disease having been imbued with syphilis, or with any syphilitic taint; and I have known several examples of parents conveying syphilis to their offspring, in whom, however, no scrofulous symptoms at any time afterwards appeared. Further, the symptoms of the two diseases are very different; and the difference of their natures appears particularly from hence, that while mercury commonly and readily cures the syphilis, it does no service in scrofula, and very often rather aggravates the disease.

MDCCLIII. For the cure of scrofula, we have not yet learned any practice that is certainly or even generally successful.

The remedy which seems to be the most successful, and which our practitioners especially trust to and employ, is the use of mineral waters; and indeed the washing out, by means of these, the lymphatic system, would seem to be a measure promising success: but in very many instances of the use of these waters, I have not been well satisfied that they had shortened the duration of the disease more than had often happened when no such remedy had been employed.

MDCCLIV. With regard to the choice of the mineral waters most fit for the purpose, I cannot with any confidence give an opinion.

Almost all kinds of mineral waters, whether chalybeate, sulphureous, or saline, have been employed for the cure of scrofula, and seemingly with equal success and reputation; a circumstance which leads me to think, that, if they are ever successful, it is the elementary water that is the chief part of the remedy.

Of late, sea-water has been especially recommended and employed; but after numerous trials, I cannot yet discover its superior efficacy.

MDCCLV. The other remedies proposed by practical writers are very numerous; but, upon that very account, I apprehend they are little to be trusted; and as I cannot perceive any just reason for expecting success from them, I have very seldom employed them.

Of late, the Peruvian bark has been much recommended: and as in scrofulous persons there are generally some marks of laxity and flaccidity, this tonic may possibly be of service; but in a great variety of trials, I have never seen it produce any immediate cure of the disease.

In several instances, the leaves of coltsfoot have appeared to me to be successful. I have used it frequently in a strong decoction, and even then with advantage; but have found more benefit from the expressed juice, when the plant could be had in somewhat of a succulent state, soon after its first appearance in the spring.

MDCCLVI. I have also frequently employed the hemlock, and have sometimes found it useful in discussing obstinate swellings: but in this, it has also often disappointed me; and I have not at any time observed that it disposed scrofulous ulcers to heal.

I cannot conclude the subject of internal medicines without remarking, that I have never found either mercury or antimony, in any shape, of use in this disease; and when any degree of a feverish state had come on, the use of mercury proved manifestly hurtful.

MDCCLVII. In the progress of scrofula, several external medicines are requisite. Several applications have been used for discussing the tumours upon their first coming on; but hitherto my own practice, in these respects, has been attended with very little success. The solution of Saccharum saturni has seemed to be useful; but it has more frequently failed: and I have had no better success with the spiritus Mindereri. Fomentations of every kind have been frequently found to do harm; and poultices seem only to hurry on a suppuration. I am doubtful if this last be ever practised with advantage; for scrofulous tumours sometimes spontaneously disappear, but never after any degree of inflammation has come upon them; and therefore poultices, which commonly induce inflammation, prevent that discussion of tumours, which might otherwise have happened.

Even when scrofulous tumours have advanced towards suppuration, I am unwilling to hasten the spontaneous opening, or to make it by the lancet; because I apprehend the scrofulous matter is liable to be rendered more acrid by communication with the air, and to become more eroding and spreading than when in its enclosed state.

MDCCLVIII. The management of scrofulous ulcers has, so far as I know, been as little successful as that of the tumours. Escharotic preparations, of either mercury or copper, have been sometimes useful in bringing on a proper suppuration, and thereby disposing the ulcer to heal; but they have seldom succeeded, and more commonly they have caused the ulcer to spread more. The escharotic, from which I have received most benefit, is burnt alum; and a portion of that, mixed with a mild ointment, has been as useful an application as any I have tried. The application, however, that I have found most serviceable and very universally admissible, is that of linen cloths wetted with cold water, and frequently changed when they are becoming dry, it being inconvenient to let them be glued to the sore. They are therefore to be changed frequently during the day; and a cloth spread with a mild ointment or plaster may be applied for the night. In this practice I have sometimes employed sea-water, but generally it proved too irritating; and neither that nor any mineral water has appeared to be of more service than common water.

MDCCLIX. To conclude what I have to offer upon the cure of scrofula, I must observe, that cold bathing seems to have been of more benefit than any other remedy that I have had occasion to see employed.

CHAP. II.—OF SYPHILIS, OR THE VENEREAL DISEASE.

MDCCLX. After practitioners have had so much experience in treating this disease, and after so many books have been published upon the subject, it does not seem necessary, or even proper for me to attempt any full treatise concerning it; and I shall therefore confine myself to such general remarks as may serve to illustrate some parts of the pathology or of the practice.

MDCCLXI. It is sufficiently probable, that anciently, in certain parts of Asia, where the leprosy prevailed, and in Europe, after that disease had been introduced into it, a disease of the genitals, resembling that which now commonly arises from syphilis, had frequently appeared; but it is equally probable, that a new disease, and what we at present term *Syphilis*, was first brought into Europe about the end of the fifteenth century, and that the distemper now so frequently occurring, has been very entirely derived from that which was imported from America at the period mentioned.

MDCCLXII. This disease, at least in its principal circumstances, never arises in any person but from some communication with a person already affected with it. It is most commonly contracted in consequence of coition with an infected person; but in what manner the infection is communicated, is not clearly explained. I am persuaded, that in coition, it is communicated without there being any open ulcer either in the person communicating, or in the person receiving the infection; but in all other cases, I believe it is never communicated in any other way than by a contact of ulcer, either in the person communicating, or in the person receiving the infection.

MDCCLXIII. As it thus arises from the contact of particular parts, so it always appears first in the neighbourhood of the parts to which the infecting matter had been immediately applied; and, therefore, as most commonly contracted by coition, it generally appears first in the genitals.

MDCCLXIV. After its first appearance in particular parts, more especially when these are the genitals of either sex, its effects for some time seem to be confined to these parts; and indeed, in many cases, it never extends further. In other cases, however, the infecting matter passes from the parts first affected, and from the genitals, therefore, into the blood-vessels; and being there diffused, produces disorders in many other parts of the body.

From this view of the circumstances, physicians have very properly distinguished the different states of the disease, according as they are local or are more universal. To the former, they have adapted appellations suited to the manner in which the disease appears; and to the other, the general affection, they have almost totally confined the appellations of *Syphilis*, *Lues Venerea*, or *Pox*. In the remarks I am now to offer, I shall begin with considering the local affection.

MDCCLXV. This local affection appears chiefly in the form of gonorrhœa or chancre.

The phenomena of gonorrhœa, either upon its first coming on, or in its after progress, or the symptoms of ardor urinæ, chordee, or others attending it, it is not necessary for me to describe. I shall only here observe, that the chief circumstance to be taken notice of is the inflamed state of the urethra, which I take to be inseparable from the disease.

MDCCLXVI. In these well-known circumstances, the gonorrhœa continues for a time longer or shorter, according to the constitution of the patient; it usually remaining longest in the most vigorous and robust, or according to the patient's regimen, and the care taken to relieve or cure the disease. In many cases if by a proper regimen the irritation of the inflamed state is carefully avoided, the gonorrhœa spontaneously ceases, the symptoms of inflammation gradually abating, the matter discharged becoming of a thicker and more viscid consistence, as well as of a whiter colour; till at length, the flow of it ceases altogether; and whether it be thus cured spontaneously, or by art, the disease often exists without communicating any infection to the other parts of the body.

MDCCLXVII. In other cases, however, the disease having been neglected, or by an improper regimen aggravated, it continues with all its symptoms for a long time; and produces various other disorders in the genital parts, which, as commonly taken notice of by authors, need not be described here. I shall only observe, that the inflammation of the urethra, which at first seems to be seated chiefly, or only, in its anterior parts, is in such neglected and aggravated cases spread upwards along the urethra, even to the neck of the bladder. In these circumstances, a more considerable inflammation is occasioned in certain parts of the urethra; and, consequently, suppuration and ulcer are produced, by which the venereal poison is sometimes communicated to the system, and gives rise to a general syphilis.

MDCCLXVIII. It was some time ago a pretty general supposition, that the gonorrhœa depended always upon ulcers of the urethra, producing a discharge of purulent matter; and such ulcers do indeed sometimes occur in the manner that has been just now mentioned. We are now assured, however, from many dissections of persons who had died when labouring under a gonorrhœa, that the disease may exist, and from many considerations it is probable that it commonly does exist, without any ulceration of the urethra; so that the discharge which appears, is entirely that of a vitiated mucus from the mucous follicles of the urethra.

MDCCLXIX. Although most of the symptoms of gonorrhœa should be removed, yet it often happens that a mucous fluid continues to be discharged from the urethra for a long time after, and sometimes for a great part of a person's life. This discharge is what is commonly called a *Gleet*.

With respect to this, it is proper to observe, that in some cases, when it is certain that the matter discharged contains no venereal poison, the matter may, and often does, put on that puriform appearance, and that yellow and greenish colour, which appears in the discharge at the beginning and during the course of a virulent gonorrhœa. These appearances in the matter of a gleet which before had been of a less coloured kind, have frequently given occasion to suppose that a fresh infection had been received: but I am certain that such appearances may be brought on by, perhaps, various other causes; and particularly, by intemperance in venery and drinking concurring together. I believe, indeed, that this seldom happens to any but those who had before frequently laboured under a virulent gonorrhœa, and have more or less of gleet remaining with them: but I must also observe, that in persons who at no period of their life had ever laboured under a virulent gonorrhœa, or any other symptom of syphilitic affection, I have met with instances of discharges from the urethra resembling those of a virulent gonorrhœa.

The purpose of these observations is, to suggest to practitioners what I have not found them always aware of, that in persons labouring under a gleet, such a return of the appearances of a virulent gonorrhœa may happen without any new infection having been received, and consequently not requiring the treatment which a new infection might perhaps demand. When in the cure of gonorrhœa it was the practice to employ purgatives very frequently, and sometimes those of the drastic kind, I have known the gleet, or spurious gonorrhœa, by such a practice much increased, and long continued, and the patient's constitution very much hurt. Nay, in order more certainly further to prevent mistakes, it is to be observed, that the spurious gonorrhœa is sometimes attended with heat of urine, and some degree of inflammation; but these symptoms are seldom considerable, and, merely by the assistance of a cool regimen, commonly disappear in a few days.

MDCCLXX. With respect to the cure of a virulent gonorrhœa, I have only to remark, that if it be true, as I have mentioned above, that the disease will often, under a proper regimen, be spontaneously cured; and that the whole of the virulent matter may be thus entirely discharged without the assistance of art; it would seem that there is nothing required of practitioners, but to moderate and remove that inflammation which continues the disease, and occasions all the troublesome symptoms that ever attend it. The sole business therefore of our art in the cure of gonorrhœa, is to take off the inflammation accompanying it; and this I think may commonly be done, by avoiding exercise, by using a low and cool diet, by abstaining entirely from fermented and spirituous liquors, and by taking plentifully of mild diluent drinks.

MDCCLXXI. The heat of urine, which is so troublesome in this disease, as it arises from the increased sensibility of the urethra in its inflamed state; so, on the other hand, the irritation of the urine has the effect of increasing the inflammation, and is therefore to be removed as soon as possible. This can be done most effectually by taking in a large quantity of mild watery liquors. Demulcents may be employed; but unless they be accompanied with a large quantity of water, they will have little effect. Nitre has been commonly employed as a supposed refrigerant; but, from much observation, I am convinced that in a small quantity it is useless, and in a large quantity certainly hurtful; and, for this reason, that every saline matter passing with the urine generally gives some irritation to the urethra. To prevent the irritation of the urethra arising from its increased sensibility, the injection of mucilage or of mild oil into it has been practised; but I have seldom found this of much service.

MDCCLXXII. In gonorrhœa, as costiveness may be hurtful, both by an irritation of the system in general, and of the urethra in particular, as this is occasioned always by the voiding of hardened fæces; so costiveness is to be carefully avoided or removed; and the frequent use of large glysters of water and oil, I have found of remarkable benefit in this disease. If glysters, however, do not entirely obviate costiveness, it will be necessary to give laxatives by the mouth, which, however, should be of the mildest kind, and should do no more than keep the belly regular and a little loose, without much purging.

The practice of frequent purging, which was formerly so much in use, and is not yet entirely laid aside, has always appeared to me to be generally superfluous, and often very hurtful. Even what are supposed to be cooling purgatives, such as Glauber's salt, soluble tartar, and crystals of tartar, in so far as any part of them pass by urine, they, in the same manner as we have said of nitre, may be hurtful; and so far as they produce very liquid stools, the matter of which is generally acrid, they irritate the rectum, and consequently the urethra. This last effect, however, the acrid, and in any degree drastic, purgatives more certainly produce.

MDCCLXXIII. In cases of a gonorrhœa attended with violent inflammation, blood-letting may be of service; and in the case of persons of a robust and vigorous habit, in whom the disease is commonly the most violent, blood-letting may be very properly employed. As general bleedings, however, when there is no phlogistic diathesis in the system, have little effect in removing topical inflammation; so in gonorrhœa, when the inflammation is considerable, topical bleeding applied to the urethra by leeches, is generally more effectual in relieving the inflammation.

MDCCLXXIV. When there is any phymosis attending a gonorrhœa, emollient fomentations applied to the whole penis are often of service. In such cases it is necessary, and in all others useful, to keep the penis laid up to the belly, when the patient either walks about or is sitting.

MDCCLXXV. Upon occasion of frequent priapism and chordee, it has been found useful to apply to the whole of the penis a poultice of crumb of bread moistened with a strong solution of sugar of lead. I have, however, been often disappointed in this practice, perhaps by the poultice keeping the penis too warm, and thereby exciting the very symptoms I wished to prevent. Whether lotions of the external urethra with a solution of the sugar of lead, might be useful in this case, I have not properly tried.

MDCCLXXVI. With respect to the use of injections, so frequently employed in gonorrhœa, I am persuaded, that the early use of astringent injections is pernicious, not by occasioning a syphilis, as has been commonly imagined; but by increasing and giving occasion to all the consequences of the inflammation, particularly to the very troublesome symptoms of swelled testicles. When, however, the disease has continued for some time, and the inflammatory symptoms have very much abated, I am of opinion, that by injections of moderate astringency, or at least of this gradually increased, an end may be sooner put to the disease than would otherwise have happened; and that a gleet, so readily occurring, may be generally prevented.

MDCCLXXVII. Besides the use of astringent injections, it has been common enough to employ those of a mercurial kind. With respect to these, although I am convinced that the infection producing gonorrhœa, and that producing chancres and syphilis, are one and the same; yet I apprehend that in gonorrhœa, mercury cannot be of use by correcting the virulence of the infection; and, therefore, that it is not universally necessary in this disease. I am persuaded, however, that mercury applied to the internal surface of the urethra, may be of use in promoting the more full and free discharge of virulent matter from the mucous glands of it. Upon this supposition, I have frequently employed mercurial injections; and, as I judge, with advantage; those injections often bringing on such a state of the consistence and colour of the matter discharged, as we know usually to precede its spontaneous ceasing. I avoid these injections, however, in recent cases, or while much inflammation is still present; but when that inflammation has somewhat abated, and the discharge notwithstanding still continues in a virulent form, I employ mercurial injections freely. I employ those only that contain mercury entirely in a liquid form, and avoid those which may deposite an acrid powder in the urethra. That which I have found most useful is a solution of the corrosive sublimate in water; so much diluted as not to occasion any violent smarting, but not so much diluted as to give no smarting at all. It is scarce necessary to add, that when there is reason to suspect there are ulcerations already formed in the urethra, mercurial injections are not only proper, but the only effectual remedy that can be employed.

"The pathology of gleets in different cases is not so well ascertained as to teach me to adapt a proper remedy to each; but there is a case in which I have found the disease cured by inducing some degree of inflammation upon the urethra; and I am persuaded, that turpentine, or what is much the same, the balsam copaivæ operates only in this manner; for I have had some instances of both turpentine and balsam copaivæ producing a manifest inflammation in the urethra to a degree of occasioning a suppression of the urine; but at the same time, when these effects went off, a gleet which had subsisted for some time before, was entirely cured.

"I have been frequently disappointed of the effects of balsam copaivæ, perhaps from my mistaking the nature of the case; but I believe frequently from its being taken in too small quantity, the patient's stomach often refusing to admit of a larger. I have sometimes had success with it, but have frequently found it too irritating, and very hurtful. Wherever I could suspect ulceration in the urinary passages, there it was especially hurtful.—*M.M.*

MDCCLXXVIII. With regard to the cure of gonorrhœa, I have only one other remark to offer. As most of the symptoms arise from the irritation of a stimulus applied, the effects of this irritation may be often lessened by diminishing the irritability of the system; and it is well known, that the most certain means of accomplishing this is by employing opium. For that reason, I consider the practice both of applying opium directly to the urethra, and of exhibiting it by the mouth, to be extremely useful in most cases of gonorrhœa.

MDCCLXXIX. After thus offering some remarks with respect to gonorrhœa in general, I might proceed to consider particularly the various symptoms which so frequently attend it; but it does not seem necessary for me to attempt this after the late publications of Dr. Foart Simmons, and of Dr. Schwediauer, who have treated the subject so fully, and with so much discernment and skill.

MDCCLXXX. The other form of the local affection of syphilis, is that of chancre. The ordinary appearance of this I need not describe, it having been already so often done. Of the few remarks I have to offer, the first is, that I believe chancres never appear in any degree without immediately communicating to the blood more or less of the venereal poison: for I have constantly, whenever chancres had appeared, found, that unless mercury was immediately given internally, some symptoms of a general syphilis did certainly come on afterwards, and though the internal use of mercury should prevent any such appearance, it is still to be presumed that the poison had been communicated, because mercury could act upon it in no other manner than as diffused in the fluids.

MDCCLXXXI. It has been a question among practitioners, upon the subject of chancres, Whether they may be immediately healed up by applications made to the chancres, or if they should be left open for some time without any such application? It has been supposed, that the sudden healing up of chancres might immediately force into the blood a poison, which might have been excluded by being discharged from the chancre. This, however, is a supposition that is very doubtful; and, upon the other hand, I am certain, that the longer a chancre is kept open, the more poison it perhaps generates, and certainly supplies it more copiously to the blood. And although the above-mentioned supposition were true, it will be of little consequence, if the internal use of mercury, which I judge necessary in every case of chancre, be immediately employed. I have often seen very troublesome consequences follow from allowing chancres to remain unhealéd; and the symptoms of general syphilis have always seemed to me to be more considerable and violent in proportion as chancres had been suffered to remain longer unhealed. They should always, therefore, be healed as soon as possible; and that by the only very effectual means, the application of mercurials to the chancre itself. Those that are recent, and have not yet formed any considerable ulcer, may often be healed by the common mercurial ointment; but the most powerful means of healing them has appeared to me to be the application of red precipitate in a dry powder.

MDCCLXXXII. When, in consequence of chancres or of the other circumstances above mentioned, by which it may happen the venereal poison has been communicated to the blood, it produces many different symptoms in different parts of the body, not necessary to be enumerated and described here, that having been already done by many authors with great accuracy.

MDCCLXXXIII. Whenever any of those symptoms do in any degree appear, or as soon as it is known that the circumstances which give occasion to the communication of the venereal poison have taken place, I hold the internal use of mercury to be immediately necessary; and I am well persuaded, that mercury employed without delay, and in sufficient quantity, will pretty certainly prevent the symptoms which would otherwise have soon appeared, or will remove those that may have already discovered themselves. In both cases, it will secure the person from any future consequences of syphilis from that infection.

MDCCLXXXIV. This advice for the early and full use of mercury, I take to be the most important that can be given with respect to the venereal disease; and although I must admit that the virulence of the poison may be greater in one case than in another, and even that one constitution may be more favourable than another to the violence of the disease, yet I am thoroughly convinced that most of the instances which have occurred of the violence and obstinacy of syphilis, have been owing very entirely to the neglect of the early application of mercury.

MDCCLXXXV. Whatever other remedies of syphilis may be known, or may hereafter be found out, I cannot pretend to determine; but I am well persuaded that in most cases, mercury properly employed will prove a very certain and effectual remedy. With respect to others that have been proposed, I shall offer this remark only, that I have found the decoction of the mezereon contribute to the healing of ulcers which seemed to have resisted the power of mercury.

"The mezereon has long had the reputation of curing venereal nodes, which mercury had failed to do.

"It is likewise said to cure other remains of the venereal disease, which mercury, taken in large quantities had failed to do; and in one case of ulcerations in many different parts of the body, which remained after mercury had been long and largely employed, I have found them entirely cured by the use of the decoction of mezereon for two or three weeks."

MDCCLXXXVI. With regard to the many and various preparations of mercury, I do not think it necessary to give any enumeration of them here, as they are commonly very well known, and have been lately well enumerated by Dr. Schwediauer. The choice of them seems to be for the most part a matter of indifference; as I believe cures have been, and still may be, effected by many different preparations, if properly administered. The proper administration seems to consist, 1*st*, In the choosing those preparations which are the least ready to run off by stool; and therefore the applications externally by unction are in many cases the most convenient. 2*dly*, In employing the unction, or in giving a preparation of mercury internally, in such quantity as may show its sensible effects in the mouth. And, 3*dly*, Without carrying these effects to a greater length, in the continuing the employment of mercury for several weeks, or till the symptoms of the disease shall have for some time entirely disappeared. I say nothing of the regimen proper and necessary for patients during the employment of mercury, because I presume it to be very well known.

MDCCLXXXVII. Amongst the other preparations of mercury, I believe the corrosive sublimate has often been employed with advantage; but I believe also that it requires being continued for a longer time than is necessary in the employment of other preparations in the manner above proposed, and I suspect it has often failed in making a cure because employed while persons were at the same time exposed to the free air.

MDCCLXXXVIII. Upon these points, and others relative to the administration of mercury, and the cure of this disease, I might offer some particular remarks, but I believe they are generally understood; and it is enough for me to say here, that if practitioners will attend, and patients will submit to the general rules given above, they will seldom fail of obtaining a certain and speedy cure of the disease.

"Of all the diaphoretics that may be employed to excite the general circulation, I hold the guaiac to be one of the most valuable, as it affords a matter which passes more readily to the extreme vessels, and seems to stimulate the exhalents more in proportion than it does the heart and great arteries. By this means it is both a more safe and more effectual sudorific than those which stimulate the latter almost only. It is on this account that it may be justly considered as more effectual than other sudorifics in the cure of the lues venerea; and it is probably upon the same ground that it has been found so useful in all cases of rheumatism, and perhaps those of gout.—*M. M.*

CHAP. III.—OF SCURVY.

MDCCLXXXIX. This disease appears so frequently, and the effects of it are so often fatal in fleets and armies, that it has very properly engaged the particular attention of physicians. It is indeed surprising that it had not sooner attracted the special notice both of statesmen and physicians, so as to have produced those measures and regulations that might prevent the havoc which it so often occasions. Within these last fifty years, however, it has been so much attended to and studied, that we might suppose every circumstance relating to it so fully and exactly ascertained, as to render all further labour upon the subject superfluous. This perhaps may be true; but it appears to me, that there are still several circumstances regarding the disease, not agreed upon among physicians, as well as different opinions formed, some of which may have a bad effect upon the practice; and this seems to me to be so much the case, that I hope I shall be excused in endeavouring here to state the facts as they appear to me from the best authorities, and to offer remarks upon opinions which may influence the practice in the prevention and cure of this disease.

MDCCXC. With respect to the phenomena of the disease, they have now been so fully observed, and so accurately described, that there is no longer any doubt in discerning the disease when it is present, or in distinguishing it from almost every other ailment. In particular, it seems now to be fully determined, that there is one disease only, entitled to the appellation of Scurvy; that it is the same upon the land as upon the sea; that it is the same in all climates and seasons, as depending every where upon nearly the same causes; and that it is not at all diversified, either in its phenomena or its causes, as had been imagined some time ago.

MDCCXCI. The phenomena of scurvy, therefore, are not to be described here, as it has been so fully and accurately done elsewhere; and I shall only endeavour to ascertain those facts with respect to the prevention and cure of the disease which seem not yet to be exactly agreed upon. And, first, with respect to the antecedents that may be considered as the remote causes of the disease.

MDCCXCII. The most remarkable circumstance amongst the antecedents of this disease is, that it has most commonly happened to men living very much on salted meats; and whether it ever arise in any other circumstances is extremely doubtful. These meats are often in a putrescent state; and to the circumstance of the long-continued use of animal food in a putrescent and somewhat indigestible state, the disease has been especially attributed. Whether the circumstance of the meat's being salted has any effect in producing the disease, otherwise than by being rendered more indigestible, is a question that remains still in dispute.

MDCCXCIII. It seems to me, that the salt concurs in producing the effect; for there is hardly any instance of the disease appearing unless where salted meats had been employed, and scarcely an example where the long-continued use of these did not produce it: besides all which, there are some instances where, by avoiding salted meats, or by diminishing the proportion of them in diet, while other circumstances remained much the same, the disease was prevented from appearing. Further, if it may be admitted as an argument upon this subject, I shall hereafter endeavour to show, that the large use of salt has a tendency to aggravate and increase the proximate cause of scurvy.

MDCCXCIV. It must however be allowed, that the principal circumstance in causing scurvy, is the living very much and very long upon animal food, especially when in a putrescent state; and the clear proof of this is, that a quantity of fresh vegetable food will always certainly prevent the disease.

MDCCXCV. While it has been held, that, in those circumstances in which scurvy is produced, the animal food employed was especially hurtful by its being of difficult digestion, this opinion has been attempted to be confirmed, by observing, that the rest of the food employed in the same circumstances was also of difficult digestion. This is supposed to be especially the case of unfermented farinacea, which so commonly makes a part of the sea-diet. But I apprehend this opinion to be very ill-founded; for the unfermented farinacea, which are in a great proportion the food of infants, of women, and of the greater part of mankind, can hardly be supposed to be food of difficult digestion: and with respect to the production of scurvy, there are facts which show, that unfermented farinacea, employed in large proportion, have had a considerable effect in preventing the disease.

MDCCXCVI. It has been imagined, that a certain impregnation of the air upon the sea had an effect in producing scurvy. But it is altogether improbable; for the only impregnations which could be suspected, are those of inflammable or mephitic air; and it is now well known that these impregnations are much less in the air upon the sea than in that upon the land; besides, there are otherwise many proofs of the salubrity of the sea-air. If, therefore, sea-air have any effect in producing scurvy, it must be by its sensible qualities of cold or moisture.

MDCCXCVII. That cold has an effect in favouring the production of scurvy, is manifest from hence, that the disease is more frequent and more considerable in cold than in warm climates and seasons; and that even warm clothing has a considerable effect in preventing it.

MDCCXCVIII. Moisture may in general have an effect in favouring the production of scurvy, where that of the atmosphere in which men are placed is very considerable; but the ordinary moisture of the sea-air is far from being such. Probably it is never considerable, except in the case of unusual rains;

and even then it is perhaps by the application of moisture to the bodies of men in damp clothing only that it has any share in the production of scurvy. At the same time, I believe there is no instance of either cold or moisture producing scurvy, without the concurrence of the faulty sea-diet.

MDCCXCIX. Under those circumstances which produce scurvy, it commonly seems to occur most readily in the persons who are the least exercised; and it is therefore probable, that confinement and want of exercise may have a great share in producing the disease.

MDCCC. It appears that weakness, in whatever manner occasioned, is favourable to the production of scurvy. It is therefore probable, that unusual labour and fatigue may often have some share in bringing it on. And upon the same account, it is probable, that sadness and despondency may induce a weakness of the circulation; and be thereby, as has been remarked, favourable to the production of scurvy.

MDCCCI. It has also been observed, that persons negligent in keeping their skin clean by washing and change of clothing, are more liable than others to be affected with scurvy.

MDCCCII. Several of these causes now mentioned, concurring together, seem to produce scurvy; but there is no proper evidence that any one of them alone will produce it, or that all the others uniting together will do it, without the particular concurrence of the sea-diet. Along with this, however, several of the other circumstances mentioned have a great effect in producing it sooner, and in a more considerable degree, than would otherwise have happened from the diet alone.

MDCCCIII. From this view of the remote causes, it will readily appear, that the prevention of the disease may in some measure depend upon the avoiding of those circumstances which we have enumerated as contributing to bring on the disease sooner than it would otherwise come on. At the same time, the only effectual means will be, by avoiding the diet of salted meats; at least by lessening the proportion of these, and using meat preserved otherwise than by salt; by using in diet any kind of esculent vegetable matter than can be obtained; and especially, by using vegetable matters the most disposed to acescency, such as malt; and by drinking a large quantity of pure water.

MDCCCIV. The cure of scurvy seems now to be very well ascertained; and when the necessary means can be obtained, the disease is commonly removed very quickly. The chief means is a food of fresh and succulent vegetables, and those almost of any kind that are at all esculent. Those most immediately effectual are the acid fruits, and, as being of the same nature, all sort of fermented liquor.

MDCCCV. The plants named *alkalescent*, such as those of the garlic tribe, and of the Tetradynamia, are also particularly useful in the cure of this disease; for notwithstanding their appellation, they in the first part of their fermentation undergo an acescency, and seem to contain a great deal of acescent matter. At the same time, they have generally in their composition an acrid matter that readily passes by urine, probably by perspiration; and by promoting both excretions, are useful in the disease. It is probable, that some plants of the coniferous tribe, such as the spruce fir, and others possessed of a diuretic power, may likewise be of some use.

MDCCCVI. It is sufficiently probable, that milk of every kind, and particularly its productions, whey and butter-milk, may prove a cure of this disease.

MDCCCVII. It has been common in this disease to employ the fossil acids; but there is reason to doubt if they be of any service, and it is certain they are not effectual remedies. They can hardly be thrown in, in such quantity as to be useful antiseptics; and as they do not seem to enter into the composition of the animal fluids, and probably pass off unchanged by the excretions, so they can do little in changing the state of the fluids.

MDCCCVIII. The great debility which constantly attends scurvy, has naturally led physicians to employ tonic and strengthening medicines, particularly the Peruvian bark; but the efficacy of it seems to me very doubtful. It is surprising how soon the use of a vegetable diet restores the strength of scorbutic persons; which seems to show that the preceding debility had depended upon the state of the fluids; and consequently, till the sound state of these can be restored, no tonic remedy can have much effect; but as the Peruvian bark has little power in changing the state of the fluids, so it can have little effect in scurvy.

MDCCCIX. I shall conclude my observations upon the medicines employed in scurvy, with remarking, that the use of mercury is always manifestly hurtful.

MDCCCX. After having observed that both the prevention and cure of this disease are now very well known, it may seem unnecessary to enter into much discussion concerning its proximate cause: but as such discussions can hardly be avoided, and as false opinions may in some measure corrupt the practice, I shall venture to suggest here what appears to me most probable upon the subject.

MDCCCXI. Notwithstanding what has been asserted by some eminent persons, I trust to the concurring testimony of the most part of the authors upon the subject, that in scurvy the fluids suffer a considerable change.

From these authors we learn, that in the blood drawn from the veins of persons labouring under the scurvy, the crassamentum is different both in colour and consistence from what it is in healthy persons; and that at the same time the serum is commonly changed both in colour and taste. The excretions also, in scorbutic persons, show a change in the state of the fluids. The breath is fetid; the urine is always high-coloured, and more acrid than usual: and if that acrid exudation from the feet, which Dr. Hulme takes notice of, happens especially in scorbutic persons, it will be a remarkable proof to the same purpose. But however this may be, there is evidence enough that in scurvy the natural state of the fluids is considerably changed. Further, I apprehend it may be confidently presumed from this, that the disease is brought on by a particular nourishment introduced into the body, and is as certainly cured by the taking in of a different diet. In the latter case, the diet used has no other evident operation, than that of giving a particular state and condition to the fluids.

MDCCCXII. Presuming, therefore, that the disease depends upon a particular condition of the fluids of the body, the next subject of inquiry is, What that condition may be?

With this view, I must observe, that the animal economy has a singular power of changing acescent aliments, in such a manner as to render them much more disposed to putrefaction: and although in a living state they hardly ever proceed to an actually putrid state, yet in man, whose aliment is of a mixed kind, it is pretty certain, that if he were to live entirely upon animal food, without a frequent supply of vegetable aliment, his fluids would advance further towards putrefaction than is consistent with health. This advance towards putrefaction seems to consist in the production and evolution of a saline matter which did not appear in the vegetable aliment, and could not be produced or evolved in it, but by carrying on its fermentation to a putrefactive state. That this saline state is constantly in some measure produced and evolved by the animal process, appears from this, that certain excretions of saline matter are constantly made from the human body, and are therefore presumed necessary to its health.

From all this, it may readily be understood, how the continual use of animal food, especially when already in a putrescent state, without a mixture of vegetable, may have the effect of carrying the animal process too far, and particularly of producing and evolving a larger proportion of saline matter. That such a preternatural quality of saline matter does exist in the blood of scorbutic persons, appears from the state of the fluids above mentioned. It will be a confirmation of all this to observe, that every interruption of perspiration, that is, the retention of saline matter, contributes to the production of scurvy; and this interruption is especially owing to the application of cold, or to whatever else weakens the force of the circulation, such as the neglect or want of exercise, fatigue, and despondency of the mind. It deserves indeed to be remarked here, that one of the first effects of the scurvy once induced, is very soon to occasion a great debility of the system, which occasions of course a more rapid progress of the disease. How the state of the fluids may induce such a debility is not well understood; but that it does depend upon such a state of the fluids, is rendered sufficiently presumable, from what has been said above with regard to both the causes and the cure of scurvy.

MDCCCXIII. It is possible that this debility may have a share in producing several of the phenomena of scurvy; but a preternaturally saline, and consequently dissolved state of the blood, will account for them with more probability: and I do not think it necessary, to persons who are at all accustomed to reason upon the animal economy, to explain this matter more fully. I have only to add, that if my opinion in supposing the proximate cause of scurvy to be a preternaturally saline state of the blood, be at all founded, it will be sufficiently obvious, that the throwing into the body along with the aliment an unusual quantity of salt, may have a great share in producing the disease. Even supposing such salt to suffer no change in the animal body, the effect of it may be considerable; and this will be rendered still more probable, if it may be presumed, that all neutral salts, consisting of a fixed alkali, are changed in the animal body into an ammoniacal salt; which I apprehend to be that especially prevailing in scurvy. If I be at all right in concluding, that meats, from being salted, contribute to the production of scurvy, it will readily appear how dangerous it may be to admit the conclusion from another theory, that they are perfectly innocent.

MDCCCXIV. Having thus endeavoured to explain what relates to the cure of scurvy in general, I judge it proper to leave to other authors, what relates to the management of those symptoms which require a particular treatment.

CHAP. IV.—OF JAUNDICE.

MDCCCXV. I have here passed over several of the titles in my nosology, because they are diseases not of this island. In these, therefore, I have no experience; and without that, the compiling from other writers is always extremely fallacious. For these reasons I omit them; and shall now only offer some remarks upon the subject of jaundice, the last in order that I can possibly introduce in my course of Lectures.

MDCCCXVI. The jaundice consists in a yellow colour of the skin over the whole body, and particularly of the adnata of the eyes. This yellow colour may occur from different causes; but in the jaundice, hereafter to be more exactly characterized, I judge it to depend upon a quantity of bile present in the mass of blood; and which, thrown out upon the surface, gives its own proper colour to the skin and eyes.

MDCCCXVII. That the disease depends upon this, we know particularly and certainly from the causes by which it is produced. In order to explain these, I must observe, that bile does not exist in its proper form in the mass of blood, and cannot appear in this form till it has passed the secretory organ of the liver. The bile therefore cannot appear in the mass of blood, or upon the surface of the body, that is, produce jaundice from any interruption of its secretion; and, accordingly, if jaundice does appear, it must be in consequence of the bile, after it had been secerned, being again taken into the blood-vessels.

This may happen in two ways; either by an interruption of its excretion, that is, of its passage into the duodenum, which, by accumulating it in the biliary vessels, may give occasion to its passing again into the blood-vessels; or it may pass into these, by its being absorbed from the alimentary canal, when it happens to be accumulated there in an unusual quantity. How far the latter cause can take place, or in what circumstances it does occur, I cannot clearly ascertain, and I apprehend that jaundice is seldom produced in that manner.

MDCCCXVIII. The former cause of stopped excretion may be understood more clearly; and we have very certain proof of its being the ordinary, and indeed almost the universal cause of this disease. Upon this subject it will be obvious, that the interrupted excretion of the bile must depend upon an obstruction of the *ductus communis choledochus*; the most common cause of which is a biliary concretion formed in the gall-bladder, and from thence fallen down into the ductus communis, it being at the same time of such a size as not to pass readily through that duct into the duodenum. This duct may likewise be obstructed by a spasmodic constriction affecting it: and such spasm may happen either in the duct itself, which we suppose to be contractile, or in the duodenum pressing the sides of the duct close together; or, lastly, the duct may be obstructed by a tumour compressing it, and that arising either in the coats of the duct itself, or in any of the neighbouring parts that are, or may come to be contiguous to it.

MDCCCXIX. When such obstruction happens, the secreted bile must be accumulated in the biliary ducts; and from thence it may either be absorbed and carried by the lymphatics into the blood-vessels, or it may regurgitate in the ducts themselves, and pass from them directly into the ascending cava. In either way, it comes to be diffused in the mass of blood; and from thence may pass by every exhalent vessel, and produce the disease in question.

MDCCCXX. I have thus shortly explained the ordinary production of jaundice; but it must be observed farther, that it is at all times accompanied with certain other symptoms, such as a whiteness of the *fæces alvinæ*, which we readily account for from the absence of bile in the intestines; and generally, also, with a certain consistence of the fæces, the cause of which is not so easy to explain. The disease is always accompanied also with urine of a yellow colour, or at least with urine that tinges a linen cloth with a yellow colour. These are constantly attending symptoms; and though not always, yet there is commonly, a pain felt in the epigastrium, corresponding, as we suppose, to the seat of the ductus communis. This pain is often accompanied with vomiting; and even when the pain is not considerable, a vomiting sometimes occurs. In some cases, when the pain is considerable, the pulse becomes frequent, full, and hard, and some other symptoms of pyrexia appear.

MDCCCXXI. When the jaundice is occasioned by tumours of the neighbouring parts compressing the biliary duct, I believe the disease can very seldom be cured. That such is the cause of jaundice, may with some probability be supposed, when it has come on in consequence of other diseases which had subsisted long before, and more especially such as had been attended with symptoms of obstructed viscera. Even when the jaundice has subsisted long without any intermission, and without any pain in the epigastrium, an external compression is to be suspected.

MDCCCXXII. In such circumstances, I consider the disease as incurable; and it is almost only when the disease is occasioned by biliary concretions obstructing the biliary duct, that we may commonly expect relief, and that our art may contribute to the obtaining it. Such cases may be generally known by the disease frequently disappearing and returning again; by our finding, after the former accident, biliary concretions amongst the fæces; and by the disease being frequently accompanied with pain of the epigastrium, and with vomitings arising from such pain.

MDCCCXXIII. In these cases, we know of no certain and immediate means of expediting the passage of the biliary concretions. This is generally a work of time, depending upon the gradual dilatation of the biliary duct; and it is surprising to observe, from the size of the stones which sometimes pass through, what dilatation the duct will admit of. It proceeds, however, faster or slower, upon different occasions; and therefore the jaundice, after a various duration, often ceases suddenly and spontaneously. It is this which has given rise to the belief, that the jaundice has been cured by such a number and such a variety of different remedies. Many of these, however, are perfectly inert, and many others of them such as cannot be supposed to have any effect in expediting the passage of a biliary concretion. I shall here, therefore, take no notice of the numerous remedies of jaundice mentioned by the writers on the Materia Medica, or even of those to be found in practical authors; but shall confine myself to the mention of those that may with probability be supposed to favour the passage of the concretion, or remove the obstacles to it which may occur.

MDCCCXXIV. In the treatment of this disease, it is, in the first place, to be attended to, that as the distention of the biliary duct, by a hard mass that does not easily pass through it, may excite inflammation there; so in persons of tolerable vigour, blood-letting may be an useful precaution; and when much pain, together with any degree of pyrexia, occurs, it becomes an absolutely necessary remedy. In some instances of jaundice accompanied with these symptoms, I have found the blood drawn covered with an inflammatory crust as thick as in cases of pneumonia.

MDCCCXXV. There is no means of pushing forward a biliary concretion that is more probable than the action of vomiting; which, by compressing the whole abdominal viscera, and particularly the full and distended gall-bladder and biliary vessels, may contribute, sometimes gently enough, to the dilitation of the biliary duct. Accordingly vomiting has often been found useful for this purpose; but at the same time it is possible, that the force exerted in the act of vomiting may be too violent, and therefore gentle vomits ought only to be employed. And either when, by the long continuance of the jaundice, it may be suspected that the size of the concretion then passing is large; or more especially, when pain attending the disease gives apprehension of inflammation, it may be prudent to avoid vomiting altogether.

" The ipecacuanha is not with any certainty suited to give a powerful or permanent stimulus to the stomach; but on this very account, for the mere evacuation of the contents of the stomach, it is the medicine that can be employed with the greatest ease and safety; and where it is proper to employ a moderate vomiting only, as for promoting the passage of a biliary concretion through the biliary ducts, it is the most proper emetic, as its stimulus may be safe, and at the same time more effectual than the other gentle means of exciting vomiting.—*M.M.*

MDCCCXXVI. It has been usual in the jaundice to employ purgatives; and it is possible that the action of the intestines may excite the action of the biliary ducts, and thus favour the expulsion of the biliary concretion; but this, I think, cannot be of much effect; and the attempting it by the frequent use of purgatives, may otherwise hurt the patient. For this reason I apprehend, that purgatives can never be proper, excepting when there is a slow and bound belly.

MDCCCXXVII. As the relaxation of the skin contributes to relax the whole system, and particularly to relieve the constriction of subjacent parts; so, when the jaundice is attended with pain, fomentations of the epigastrium may be of service.

MDCCCXXVIII. As the solids of the living body are very flexible and yielding; so it is probable, that biliary concretions would in many cases find the biliary duct readily admit of such dilatation as to render their passage through it easy, were it not that the distention occasions a preternatural spasmodic contraction of the parts below. Upon this account, opium is often of great benefit in jaundice; and the benefit resulting from its use, proves sufficiently the truth of the theory upon which the using of it has been founded.

"In cases of jaundice, I have found a biliary stone, in passing the biliary ducts, give such an irritation as to produce a considerable degree of inflammatory state in the system; and though I have found it necessary for moderating this, to employ blood-letting, yet, as I considered the passage of the stone to be chiefly interrupted by a spasmodic constriction of the ducts, I have employed opium for taking off this with great advantage.—*M.M.*

MDCCCXXIX. It were much to be wished, that a solvent of biliary concretions, which might be applied to them in the gall-bladder or biliary ducts, was discovered; but none such, so far as I know, has yet been found; and the employment of soap in this disease, I consider as a frivolous attempt. Dr. White of York has found a solvent of biliary concretions when these are out of the body; but there is not the least probability that it could reach them while lodged within.

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THE END.

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